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clear honey is desired, it may be strained through silk. The native wild combs contain no wax. The larvae are sometimes eaten, either toasted in their cells or fried. The latter method of preparation involves picking the larvae out of the cells. Yet another method is to toast the larvae with onion, chile, and salt. The latter method is said to be especially tasty, but probably only *panaleros* ever use any of these methods very often.[5]

The larvae of another insect, the *traspanal* (*jicotera* in La Cañada), are also collected and eaten occasionally. This insect resembles the native bee but is a little larger and makes its nest in the ground to depths of 1 meter (3 ft.) or more. No other animal food is collected and the use of the eggs of wild birds was denied with every evidence of distaste.

USE OF MINERALS

Stone, volcanic cinders, and clay are the three mineral resources utilized in Cherán. Tuffs and lavas are employed for house building, foundations, and fences. The materials occur either in the town itself or in barrancas within a few hundred yards of the town. Volcanic cinders are also quarried out of the sides of barrancas, often within the town, and are employed to spread over slippery places on trails, streets, and yards. The supply of materials far exceeds demand, and the public domain affords all needed supplies.

Most of the rock used in Cherán comes from a quarry on the west face of the hill of Santa Karákua (also called Santiákujákua) within the village. Most of the rock is prised out of the upper face of the quarry in large pieces, which usually are broken up in the fall to the foot of the quarry. The broken rock is then placed in piles, which later comers will not molest. Smaller rocks and spalls are abundant and anyone may help himself to these. The rocks are usually packed by tying them on burros with ropes, while small pieces may be placed in nets or in pack boxes.

Clay is somewhat more scarce. It is used only for tilemaking and brickmaking, as no one in Cherán makes pottery. A sufficient supply of clay for all present needs is dug out

[5] At Sopoco in La Cañada, Rendón was told that the larvae are sometimes eaten raw.

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223 in the tops of bushes in which quail perch and peer about. When the bird puts its head in the noose, the hunter, who is hidden nearby, pulls a string. Pigeons are hunted mostly by boys, who set snares near watering places. The birds ordinarily water at dusk, alighting away from the water and walking toward it. The boys erect small fences by the water and hang the snares in openings left at frequent intervals.

435 Deer meat is sold in the village at the price of beef. It is said not to be liked very well.
438 Squirrels are sold at 10 centavos and pigeons
262 at 5 centavos each. Wild ducks are brought from Zacapu and sold at 50 centavos to 1 peso each, depending on size.

AGRICULTURE

241 Cherán is primarily an agricultural village.
[463] Many Tarascan towns have industrial specialties at which most of the inhabitants work full or part time. For example, it is fair to say that Paracho is a woodworking and weaving village or that Patamban is a pottery-making village, even though a number of persons devote part or all of their time to farming. In the same way, although there are industrial specialists in Cherán and it produces an important amount of forest products, such as lumber, railway ties, and charcoal, farming nevertheless overshadows all other activities. Most Cherán residents own land or farm on shares, and the majority engage in no other activities. In relation to all economic activities, then, farming occupies a place comparable to that occupied by pottery manufacturing in Patamban or fishing in some Lake villages.

The basic crop of Cherán is maize. Second in importance, but ranking far below maize, is wheat. Yet despite the emphasis on these two crops, Cherán farming is extraordinarily varied, as the following list of cultivated plants shows:

Maize	Cabbage
Wheat	Silantro
Barley	Mint
Oats	Fennel
Amaranth	Pears
Broadbean (*haba*)	Plums
Squash (*chilacayote*)	Cherries
Pumpkin	Apples
Bean	Peaches
Potato	Quinces

243 although belonging to the same race (see Appendix 3). It is believed in Cherán that blue maize will not grow in the fields, although an almost identical genetic type is grown in the fields in Sevina and Nahuatzen. The stalks are taller and more slender and the ears are larger and longer than those of other types. Although it may be planted as early as Trimásion, the maturation time is faster and some people plant black maize late in order to have a single harvest time. In no case is black corn planted before Easter Saturday. However, much of
[262] the black maize is eaten in the milk stage as roasting ears. The stalks are also sweeter, apparently, and non-bearing stalks are cut and
[263] chewed to extract the sweet sap.

All Cherán farmers preserve a red color
243 variant of the Trimásion and Tulukénio types.
824 Red ears are called čóču and are considered a different variety, but genetically the type apparently is only a color variant. A few red ears are always planted in each field. The reasons are discussed below. Red maize is said to be sweeter and is used for two kinds of cookies, an S-shaped cookie called čústika and a coiled shape called tokére čústika.

No effort is made to select seed at harvest.
243 All the maize is stored together, but as corn is taken from storage for use, the farmer's wife systematically lays aside red ears and the largest and best-filled-out ears, always taking inferior ears for food or sale. In this way, when planting time comes, the best ears remain. These are sorted and a further selection made. Grains from the butt and tip are discarded.

Maize seed selection is always done when the moon is crescent. Neither selection nor shelling is done after the full moon. This rule applies to no other seeds. Each family keeps its own seed (of all other plants as well as maize) and obtains seed from others only if its own is very bad.

Maize is subject to many plagues and animal enemies. Pocket gophers do great damage to maize (and also to wheat). Before planting, and usually before plowing, gunpowder is exploded in the runways of the animals, which is said to kill many. No effort is made to trap or kill survivors, however, even though they may be damaging growing crops severely.

243 While crops are small, posts are placed in the fields to provide perching places for hawks.

Worms may damage small plants to the point that reseeding is necessary, especially if there are long periods of cloudy weather without rain. Worms also damage about 35 percent of the ears. Deer damage crops badly only in isolated mountain fields. Badgers in some places are serious pests. The only remedy is to attempt to shoot the animals. Birds do little damage. Some maize is attacked by a fungus. [262] The fungus is eaten, but it is not sold or prized as a delicacy as is the case in some parts of Mexico.

243 672 685 Trespass by domestic animals and theft must be guarded against. Sometimes isolated fields are completely stripped if not watched. Stray animals caught damaging corn are taken to the *municipio* and held in jail until the owner pays for the damage.

243 [132] Unseasonal frost often damages corn, particularly late plantings and in fields at high altitudes. In 1940, frost, heavy enough to damage some fields, occurred on September 29.

When maize is about 1 foot high it is cultivated ("*escarda*" also "*trozando*") by running the plow between the rows, throwing dirt toward the plants. This is done a second time when the plants are about 18 inches tall. If it is delayed too long, the roots may be cut, the maize leaves will yellow at the tip, and no ears will form.

When the maize is in tassel, after the rainy season is well underway, the fields are weeded "*chaponeado*." [412] This is done by hand with a short machete, called "*os*," with a sharp curve at the point. Also, earth is piled around such plants as were not sufficiently covered by the cultivation. If the weeds are bad, a second weeding is sometimes done, but not often. If weeding is omitted, weeds climb high up the stalks and the crop suffers considerably. The weeds removed are piled up beside the fields and are not used for feed or fertilizer.

243 221 674 As soon as grain is well formed on the ears, some maize is used for food, usually roasted. At this time, also, guards must be set in the fields, not only to keep animals out, but to prevent theft. Whole families may move to temporary field shelters at this time and remain until the harvest. In the "plains," usually

244 usually near the house, where they spread over kitchen roofs, sheds, and fences. Planting is in the week of Candelaria. No fruit is borne until the second year.

The tubers formed on the roots of the chayote plant, called chinchayote, are dug up every third year on New Year's day or shortly after. They are found about a yard and a half from the stalk at a depth of 2 feet. They are boiled
[252] or fried and eaten. In flavor and texture they are superior to potatoes, which they resemble. If the tubers are not removed every 3 years, they rot and the plant sickens and does not bear.[9]

Miscellaneous vegetables and herbs.—Green vegetables and herbs are usually grown in small garden plots within the patio or houseyard. Most important is cabbage, of which two varieties are grown, one which heads and one which does not. The latter is the more common, producing a cluster of large leaves along a stalk a foot or more in height. Cabbage is an essential ingredient of the universal meat dish, čurípo.

On rare occasions, other vegetables are grown, such as carrots, tomatoes, and onions. The latter two do not produce well in Cherán,
[262] and carrots and other vegetables have little place in Tarascan cookery.

[263] Almost every garden has a few herbs, the most common of which is *cilantro* (kulántro), used to flavor meat dishes. Two mints (kuaʒitiniš and kuaʒitiniš kamáta akúa) are grown for use in atoles.

[278] Camomiles, *manzanillo*, of at least two types are grown as carminatives.

Agave.—Although agaves (akámba) are
249 planted extensively along the ditches cut as field boundaries to keep out animals, relatively little use is made of them. There is some
[272] collection of the juice, *agua miel* (urápi). Some is consumed locally, but most of it is
[273] shipped to Uruapan. No native residents drink the juice after fermentation as *pulque*. Only wild agaves are roasted.

To secure the juice, according to description, a cavity is cut in the heart with a knife and the

[9] In Parícutin village, chayotes (apúpo) are planted in stone-lined pits to protect the seeds from gophers. The pit is about 50 cm. deep. The pulp is carefully removed from the seeds, which are then carefully wrapped in maize husks and tied with the same material.

236 Although mutton is eaten to some extent, sheep are raised primarily for wool. Sheep [262] are sheared twice a year, in late fall and early summer. A sheep yields about 1 pound of wool [435] in two shearings, which sells at from $1.00 to $1.25 (all monetary values are in Mexican currency). Black wool brings more than white (as it is all used locally for serape weaving).

233 *Goats.*—Only a few goats are raised. Normally they are herded with the sheep and are [234] treated like them. In rare instances the goats are milked, and the milk is made into cheese. [438] The most important use of goats is to sell them for food, usually outside the town, as goat meat [262] is rarely eaten in Cherán. Goatskins are sold uncured with the hair.

231 *Horses.*—Although some horses are bred in Cherán and some care is exercised in breeding, it is said the animals deteriorate because of the cold climate. Consequently, most horses are imported, but they also deteriorate rapidly. More important than the cold, undoubtedly, is the fact that no one in Cherán understands the care of horses. They are badly fed and receive little protection from the weather. Stallions are castrated.

In any case, horses are rare in Cherán and [492] are little used except as riding animals, especially by those with numerous cattle or pack animals. Riding and pack gear are the same [184] as those of the Mestizos. Although in other [241] Tarascan towns horses are used in plowing, this was denied in Cherán. A rather poor [435] horse costs about 70 pesos. Most horses be[556] long to well-to-do men and primarily are indicators of social position. Attitudes toward owning a horse are a weak reflection of those of the vanishing Mexican *caballero*. Women almost never ride.

Horses are fed maize, oats, maize stalks, and [232] wheat or oat straw. Few people have any knowledge of treating illnesses of horses. [472] Ownership is indicated by branding, and horses [552] are given names similar to those used by [262] Mestizos. Horse meat is not eaten, but horse [291] hides are valued for tanning.

Mules.—Mules are even rarer than horses and have a higher value. Almost all are im[492] ported. They are used mostly as pack animals, but occasionally they are ridden or used with the plow.

231 the plow. Care and practices otherwise are the same as for horses.

231 492 *Burros.*—"The poor man's mule" is one of the more common animals in Cherán. Often kept in a shed by the house, the burro is employed to bring in firewood (when he may be ridden to the woods), to bring in the harvest, carry goods on trading trips, and perform any other service of burden carrying. Burros may be used as light draft animals in such tasks as dragging brush over wheat fields to cover the seed after sowing. Often rented, especially at harvest time, burros are frequently lent to friends, neighbors, and relatives. Although hard-worked, they are usually better cared for and less abused than among the Mestizos. They are often fed rather than pastured, and saddle sores and other signs of abuse are relatively uncommon.

Burros are bred in the town. Jacks are not [262] [281] castrated. The flesh is never eaten and the hide is regarded as of little value.

231 *Dogs.*—Usually each household has one or perhaps two dogs, but large numbers of starved animals are rare. Ordinarily a dog is fed what the family has, and if a dog is underfed, usually the family is also. Dogs are always named, usually for "pretty things or animals" [552] such as Butterfly, Duke, Tiger, or Rattlesnake. Others are named for their coat color or because the name is liked. No effort is made to control the breeding of dogs.

Dogs are used in hunting, sheepherding, and to guard the house. In the latter capacity, the dogs of the *barrio* of Paricutin are much more aggressive than in the rest of the town. This may be because their masters are generally less friendly or may simply reflect the more rural character of the *barrio*.

Hunting dogs are used to chase deer, squir- [224] rels, rabbits, and other animals after they have been wounded. Apparently no special training is given. Sheep dogs are trained by putting them on a leash with a sheep during the day and tying them near the sheep at night. They are encouraged to bark at the right time and to attack coyotes.

Cats.—Cats are not numerous in Cherán, although they are valued fairly highly because they combat the many rats which steal stored corn. Cats seem well treated and are some-

231 times petted. One reason for having cats is "because they give pleasure." They are given "pretty" names or names of affection such as [552] *Chulita* and *Negrita* ("Pretty Little One" and "Little Black One").

Cats are fed primarily on tortillas, although they usually are given a little of whatever the family is eating. Kittens are given away to friends and relatives; they are never killed, "for there are never enough cats." Strange [754] cats may be associated with witchcraft and might be mistreated or killed, but this apparently does not happen often. Eating of cats is denied, although young fat kitten is reported to be a delicacy for really poor people in nearby Mestizo towns.

235 *Chickens.*—Many people have no chickens and no one has large flocks. They are fed, but receive little care. Fowls are sometimes eaten on special occasions, such as a baptism, when a cooked fowl may be presented to the godfather. [262] Eggs are rarely eaten but are sold to [438] traveling egg merchants from Mestizo towns. [435] An average egg will sell for 5 or 6 centavos, which will buy enough beans for a whole family to have a meal, while one egg "will not satisfy even one person."

Chickens are fed whole corn or, if there are very few chickens, *nixtamal* (*masa* or corn dough for tortillas). Chicks are also fed *nixtamal*. Boxes or baskets are provided for nests. The first time a hen wishes to "set," it is not permitted, but it is the second time. Eggs from other hens are never placed under a "setting" hen. Small chicks are placed under box crates to protect them from "*onzas*" (from [136] descriptions, *onza* in Cherán means a small weasellike animal).

Roosters are raised for cock fighting. How- [541] ever, organized cock fights are held only during the fiesta of Octava.

Pigeons.—Although regarded as a domestic animal, pigeons are really wild. Ownership is [422] not clear. As the birds are not fed, but help themselves to stored grain in the lofts of the houses, ownership presumably would be felt for the birds eating one's corn. The matter seems unimportant, as the birds are rarely eaten, although they are used in connection with the San Juan fiesta. If eaten, only adult [262] pigeons are killed.

baskets. Such foods as sugar, coffee, salt, lard, fruits, vegetables, herbs, meat, fish, and manufactured foods such as bread are purchased in small quantities and are kept in various covered pottery or basket containers in the kitchen.

Eating habits show considerable variability as between families. They also change with the season and the prevailing occupations. Ordinarily three meals a day are eaten, at about 10 a. m., 2 p. m., and 7 p. m. or an hour later. Very poor people may eat only twice. The major foods are tortillas and other maize dishes, meat (or fish or cheese as substitutes), and green plants. In addition to these common foods, which may be prepared in various ways, there are various occasional or seasonal foods eaten as part of the regular diet, as well as foods eaten only or primarily on the occasion of a fiesta.

Two types of morning meal exist. The most common is a meal of tortillas and either meat or greens. This is varied every 4 to 8 days with some kind of atole. Some persons have taken over the local Michoacán habit of a boiled sweetpotato or a piece of bread and a glass of milk eaten early in the morning, at 7 or 8 o'clock. Such people usually eat the midday meal a little earlier in the day, between 12 and 1 o'clock. The midday meal is almost always a beef stew with cabbage (čurípo) eaten with tortillas. Those who cannot afford meat, eat some vegetable instead, often prepared with milk and sometimes with cheese also. The evening meal is usually the same as the midday meal. Prepared food may be kept over from one day to another.

Some people may eat only two meals, at about 10 a. m. and 7 p. m. The morning meal may consist of tortillas and beans or tortillas and chile sauce, varied frequently with atole, although no one would have atole daily. At night beans may be eaten if available; if not, boiled cabbage or čurípo is eaten, depending upon economic circumstances. Meat, eggs, fish, and game are rarely eaten by really poor people. Poor people often eat atapákua (squash blossoms and immature squash) with tortillas and ground dried fish or cheese if they have a midday meal. Between meals children or adults, if they feel hungry and the foods are available,

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184
262 eat cooked chayotes, chilacayotes, or boiled
264 squash (sometimes with brown sugar).

The following are the foods most commonly
262 eaten in Cherán:

All seasons: Tortillas, čuripo, tamales (kurúndas type), beans, beef or pork in brown mole, fish, cabbage, chiles, onions, coffee, chocolate, lemons, bananas, peanuts.

January: Cherimoyas, *zapote negro*, oranges.

February: Oranges.

March: Chilacayote (a squash stored since October).

April: Cherries, avocados, oranges.

May: Mushrooms, *nopales* (young leaves of the prickly pear), wheat breads, wheat, tortillas, avocados, watermelons.

June: Mushrooms, pears, peaches, avocados, cheese, sugarcane.

July: Cheese, immature squash, squash blossoms, pears, peaches, sugarcane.

August: Pears, peaches, green corn, sweet tamales (očepos), apples, cheese, sweetpotatoes, sugarcane, broadbeans (*habas*.)

September: Pears, apples, crab apples (*tejocote*), cheese, sweetpotatoes, sugarcane, broadbeans, honey.

October: Chayotes, chilacayotes, crab apples, honey, sugarcane, guavas, oranges, papayas, broadbeans, cheese.

November: Chayotes, chilacayotes, broadbeans, guavas, oranges, pumpkins, cheese.

December: Cherimoyas, chayotes, some chilacayotes, guavas, oranges.

Some of these foods may be available in other months, but the periods in the list represent the times of greatest use. The list does not contain a number of little-used foods. Except for a few herbs, the maguey, and wild crab apple, no wild vegetable foods are eaten in Cherán.[13]

MEAT FOODS

252 Čuripo is a stewed meat, almost always of
262 beef, usually containing cabbage, a few gara-
banzos (chickpeas), and often a bit of carrot.
[263] Salt and a considerable quantity of ground dried chile are employed as seasoning. The thin broth is served in the same dish. One or two pieces of meat weighing about 2 ounces, a little of the vegetables, and about a cup of broth comprise the usual serving. Second servings are not usually eaten either by guests or in the privacy of the home. This food is eaten on all fiesta occasions throughout the year

[13] Some wild foods are reported by Sra. Rendón for La Cañada. Bitter prickly pear, *tuna agria* (*joconoxtle*), is used as greens in čuripo and in making chile sauce (*sinduraksa*). La Cañada Tarascans eat mulberry leaves (?), *hojas de mora*, are eaten by the Sierra Tarascans "because of their poverty."

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and as a daily food by all who can afford it, which in Cherán would probably constitute a considerable majority of the population. It is often eaten with tamales of the type known as kurúndas, or with boiled chayote. Meat, if not made into čurípo, usually is boiled.[14]

Mole is a less common meat dish, probably derived from the Mestizos. It consists of a stew, preferably of turkey, but if this is not obtainable, of chicken, pork, or beef in descending order of frequency as well as preference. Pieces of the boiled meat are served in a sauce made in various ways, according to the availability of the ingredients and the knowledge of the cook. The sauce may include the following ingredients: Cloves, ginger, chocolate, cinnamon, ground toasted bread or tortillas, pumpkin seeds, garlic, onion, and chile of the type known as pasíya or *"chileancho."* The chiles are either fried in lard or dipped in hot water, ground with the other ingredients, and cooked in the meat broth. A thick, rich, and usually rather greasy sauce or gravy is the result. Mole is usually eaten on special occasions.

Fish are brought to Cherán either fresh, broiled, or dried. Fresh fish come from Erongaricuaro on Lake Pátzcuaro only a limited part of the year, usually just after the rainy season in the fall. It is expensive compared with meat, but is much liked. During the rainy season, broiled fish are brought from Lake Chapala; in the dry season, from Erongaricuaro.

The fish are washed carefully in hot water before cooking. Fish is boiled in water with onion and *silantro* (a pungent herb). Some people eat the intestines, removing only the bile. Seasoning with chile and tomato, ground together, is common; sometimes the broth is thickened with maize dough and sometimes onion is added. Fish may also be fried with eggs in lard, making a sort of fish hash.

Small dry fish (čaráles), resembling small dried minnows, are on sale on market day throughout the year and also at many of the stores. They are toasted on the *comal* and eaten with chile and tortillas, especially for breakfast. They are also made into a broth with chile sauce.

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[14] The majority of the recipes were collected by Silvia Rendón.

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It is believed to be injurious to eat any kind of fish when ill of the "*bilis*."

Game is eaten to some extent when available. Deer meat is sold in pieces or in retail quantities by the hunters in much the same fashion as beef. Squirrels, doves, and ducks are all liked. Squirrels are sold at 10 centavos, doves at 5 centavos, and ducks at 50 centavos to 1 peso. Ducks come from Zacapu. A few people eat pigeons. Only adult pigeons are eaten.[15]

Eggs are eaten to a considerable extent, fried, mixed with fish, or scrambled with cheese. But poor families, even if they have chickens, prefer to sell the eggs and buy beans.

MAIZE FOODS

Maize is made into tortillas, *gordos*, posole, or tamales, and is also used to thicken some types of broths and sauces. It is also eaten green, and certain foods are made from green corn. No maize foods are salted. Maize types include white, yellow, red, and black, the latter two types not being common. White maize is sold chiefly outside the village.

Methods of initial preparation vary. For tortillas and *gordos* the maize is boiled with lime. This softens and to some extent dissolves the outer shell of the grain. After thorough washing in a special basket, it is ground into *nixtamal* or dough. If economically possible, grinding is done at the power mills in the town, followed by further grinding at home. Some people are too poor to pay for the mill, and the women do all the grinding on the metate.

Tortillas are made of the *nixtamal* or maize dough. A quantity is scooped off the metate and shaped into a flat disk in the hands. This is then skillfully slapped between the palms until it becomes a thin sheet about one-eighth inch in thickness and 6 or 7 inches in diameter. This sheet is baked on a dry flat clay dish, the *comal*, with moderate heat. Usually the tortilla is turned two or three times in the process. Tortillas are served at virtually every meal, regardless of the rest of the menu, and are the main article of diet.

Gordos are smaller and thicker cakes fried

[15] The people of Ichán in La Cañada are well known for their fondness for small wild birds such as *bongetse*, doves (Auilotas), wild pigeons, torcazas, and *jarrinas*.

262 252 in deep pork fat. Wheat is used for *gordos* more often than is maize.

Nixtamal prepared for tortillas or *gordos* is the kind used to thicken sauces or soups.

For posole the maize is cooked with oak wood ashes instead of with lime. When cooked, it is white instead of yellow, as it is when lime is used. The shell is completely removed in this process. The grain is then washed thoroughly and boiled with pork, chile, and chopped onion. Posole is essentially a fiesta dish, served especially with certain birthday celebrations.

Tamales are made from maize prepared as for posole but ground either at the power mill or on the metate. There are several kinds of tamales.

Kurúnda is the most frequently made type of tamale. The maize is prepared apart from that intended for tortillas. The dough is mixed [751] with bicarbonate of soda, which is said to prevent the tamale from constipating the eater. The *nixtamal* is then spread on the metate with the aid of the mano or grinding stone and the cook takes a quantity in the palm of the hand, molding it into a flattened ball. It is then tightly wound with several thicknesses of maize leaves (not husks) in such a fashion that the finished kurúnda is triangular in shape. The tamale is then boiled for some time in a covered vessel. The dough is thick, compact, and heavy, retaining something of the taste of the bicarbonate of soda. Usually kurúndas are the size of the palm of the hand, but for a person who is "very refined" (*muy fino*), they [576] may be made smaller, a delicate way of paying a compliment.

The kurúnda is an essential part of a great many special meals, such as those served at weddings, for entertainment of guests, and at fiestas. It is usually eaten with čurípo but may sometimes be eaten with atole. On such occasions, when kurúndas are served to men the wrappings are always removed but to women they are always served with the wrappings, possibly because the women frequently take them home. Kurúndas may also be eaten cold the next day, but usually they are heated on the [265] *comal*. They are sometimes sold on the streets [435] at 4 to 5 centavos and are always available on market days. The vendors are always women.

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262 With čurípo, the kurúnda is one of the most
252 typical of Tarascan dishes.[16]

There are various forms of the kurúnda, which are eaten on special occasions. The details follow.

Atápakwa kurúnda.—Atápakwa is a sauce made of any kind of chile, cooked, toasted, or raw. This is ground with green tomatoes, garlic, and onion, and seasoned with salt. Fresh or dried cheese, finely broken up, may be added. The regular kurúnda is simply dipped in the sauce as it is eaten. This dish may be served at any time, but it is most frequently used when men come home to lunch from the fields or on other occasions in the middle of the day when the family do not ordinarily have a midday meal.

Agwákata kurúnda.—Beans of any sort are cooked and ground. They are placed in layers alternating with layers of *nixtamal* until a thick cake is formed. This is wrapped in maize leaves and steamed. Agwákata kurúndas are made primarily at the time of the bean harvest (Cherán grows few beans) and are eaten at any of the main meals. They may also be given to children between meals.

Nákatamal.—This is a tamale made with maize dough filled with meat and chile sauce. Beef is commonly used, although pork may also be employed. The meat is boiled in water and cut in small pieces without bones. It is then mixed with a chile sauce made of the dry chile known as *pasiya*, which is cooked in water and ground with tomatoes, garlic, and onions. These tamales are not wrapped in maize leaves but in dry maize husks soaked in water. A small quantity of dough is spread over the leaf and on this is placed a small quantity of meat and sauce. The leaf is then doubled over and the tamale cooked in boiling water. The nákatamal must be small in size to be properly made. The name and the type suggest it is of
[177] Valley of Mexico origin. It is ordinarily made
769 only for the fiestas of the dead on the 1st and
252 2d of November, although it was served to me
262 once on an ordinary occasion. It forms a part of the offerings made to the dead and is also eaten in the graveyard by the mourners and

[16] In Parícutin kurúnda means "corn husks." Kurundurini means "to wrap tamales in maize leaves."

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[769] guests. A few are made for sale on the 1st
262 and 2d of November.
252 *Tamalito.*—This is made by mixing dough with lard and salt, forming a small ball, which is wrapped in maize leaves and cooked in boiling water. It is usually eaten the following morning for breakfast, commonly with *atole blanco.*

Čarikurúnda.—This tamale is made of black maize, boiled with wood ashes, washed, and milled. The dough is allowed to stand one night, becoming somewhat bitter. Beans are cooked and ground on the metate. A layer of bean paste is laid over a layer of maize dough, covering the metate. This is cut in squares, about three fingers wide, which are then rolled up, wrapped in maize leaves, and cooked in boiling water. The čarikurúnda is about the size of the kurúnda. It is made about March, at the period in which the sowing of maize begins. The colored maize is usually set apart out of each harvest for this purpose. A little white maize is often added "to improve the taste."

Atoles (*kamáta*) of various kinds are made.
272 The maize dough, prepared as for tortillas, is dissolved in water and cooked with various flavorings. The broth is sometimes fairly thick but ordinarily is drunk from a glass, bowl, or cup. There are also atoles made of other grains. Many are made at special seasons of the year or for special occasions. Atoles are usually eaten for the morning meal.

Nuríte kamáta.—This is the most common
252 form of atole. It is made as is described above
262 but is flavored with an herb called nuríte. It is
263 usually eaten for breakfast not less than once a week. Nuríte is a wild herb greatly used for flavoring and also for medicinal purposes. It imparts a slightly bitter flavor to atole, somewhat like *yerba buena.* No sugar, salt, or other flavoring is employed. This atole is commonly eaten with tortillas and a little cheese, or squash, or *gordos* of either dry or green maize.

Kamáta urápiti.—This is said to mean "white
252 atole." It is made of dough from either white
272 or yellow maize cooked in water with a little
273 thickening substance (not identified) and either without any seasoning whatever or with laurel (nurúkata). A small bite is taken from a cake of brown sugar, followed by a draft of atole, and then a drink of *aguardiente.* The atole

252 chiles are added. Everything is passed through
272 a colander before cooking.

Puɬiti kamáta.—This is made as is the one just described, but anis is used as flavoring and ground green corn is used instead of the ordinary maize dough. Nothing else is eaten with this.

Tamaríndo kamáta.—Maize dough and sugar are put through a colander and thoroughly boiled with 5 centavos worth of tamarind or blackberries. A small quantity of leaves of black or red maize is boiled; the liquid is added, giving the atole a blackish color. It is eaten with bread in the dry season.

Čarákata čarápiti.—According to another informant, this is made the same as tamaríndo kamáta, but with ground tamarisk or ground blackberry added. It is said this is the only occasion blackberries are used. March, April, and May, the warm season, is the time for eating this, as it is said to be a "cold" atole. When the atole has cooled and thickened, small portions are sometimes put on the colored maize leaves and allowed to thicken or harden like fruit paste. If not eaten immediately, it may be wrapped in the leaves.

Iɬúkua kámata (milk atole).—Ordinary maize dough atole is made with milk. This is one of the more common atoles. It is eaten with bread.[17]

252 *Tóquera ičusta.*—Uncooked maize tóquera
262 (half way between green and mature maize) is ground on the metate, mixed with brown
[751] sugar and bicarbonate of soda (to prevent constipation), and fried in fat. This is a type of *gordo.*

Uačakata.—This is red or black maize which
251 has been boiled on the cob and then dried for at
252 least several months. This is one of the forms of maize preservation; the maize may be kept as long as 2 years. When desired, it is soaked for a day and night and then boiled. It is used ground for atole or is boiled with brown sugar.

RICE FOODS

252 *Arroz kamáta, rice atole.*—Well-cooked rice,
262 milk, sugar, a bit of cinnamon, and a little

[17] It is reported that in Zamora and Purepero, both old Mestizo towns, the favorite atole is made of mesquite. The beans are ground on the metate and cooked.

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252 wheat flour or maize dough for thickening are
262 all passed through a colander and boiled.

AMARANTH FOODS

Čápata kurúnda.—This is a tamale made from amaranth, *bledos* or *alegría* (paári), which is cultivated both in gardens and in the fields. The seed is ground with brown sugar, with water added to make a dough. It is then wrapped in maize husks and cooked.

WHEAT FOODS

At harvest time the heads are toasted on the *comal* and eaten. A kind of oval wheat flour tortilla is made just after wheat harvest, especially in May and June.

Semítas, or round wheat breads.—These [438] are made primarily in the town, partly for sale [443] in Uruapan or Paracho on market days. The wheat is usually ground on the metate, but there is some variation in the coarseness of the flour. Semítas are made with yeast, shaped, and set on boards to rise. They are baked in the dome-shaped Spanish oven. If the baker does not [427] own an oven, she pays one bread for each board-ful she bakes.

Tri kamáta.—Wheat is dampened and ground to flour, with water added to make a dough. The dough is dissolved in water and cooked with an herb called epazóte (*chile cascabel*) and salt. It is strained before boiling. It is eaten alone without bread or tortillas.

Gordos.—Ground wheat is mixed with water and made into flat cakes. They are fried in deep pork fat, and are pretty greasy.

VEGETABLES AND FRUITS

Cabbage is the most common vegetable. It is always eaten cooked, usually with meat. Scarcely a house in Cherán does not have a small plot of cabbage. People who do not have their own, buy cabbage from house own-[443] ers who do. Cabbage is not sold in the market.

Chayotes constitute an important food during the season. Children munch on them all day. Cooked chayotes are sold on the streets at [435] 2 to 5 centavos, depending on size.

Chayote roots, which are dug up every few years, are boiled and eaten. They resemble a very good baked potato in flavor.

252 Peanuts are often on sale on the streets.
262 They and cooked squash are the only refreshments accessible to the very poor. Generally
[435] about a handful may be purchased for 1 centavo.

Chilacayote is a member of the squash family with watery white flesh. It probably is closest to what we call pie melons in the United States. It is much liked. The young, immature fruits are boiled with a little milk and, if it can be afforded, a little cheese.

As mentioned previously, mature chilacayotes are eaten all year but mainly in the spring.
[251] If placed in the sun daily for some time during dry weather, they will keep for some months in storage. They are sometimes coated with ashes mixed in water before storage. To serve, they are cut in pieces and boiled. Usually,
[435] cooked pieces may be bought on the street for a centavo.

Atapákua is made of squash blossoms and sliced immature squash, cooked with chile and a little flour or maize dough for thickening.

Nopal (prickly pear) is used as a vegetable. The tender leaves are skinned, cut in small squares, boiled, and then usually fried very lightly in lard.

Squash greens (the tender tips of the runners on the vines), which are commonly eaten in many parts of Mexico, are rarely eaten in Cherán. An informant had "heard" that those people who did eat them boiled the greens, then cooked them lightly with lard.

Green beans are not eaten. Informants did not even know a name for them. Dried beans are boiled, usually with a very little salt. They are often not very well done because of the altitude. They are watery and tasteless to an outsider, although relished by the residents.
[134] They are scarce, as there are few suitable soils near Cherán and most beans are imported from the Lake Pátzcuaro region.

262 Fruits are eaten rather sparingly in season in accordance with the economic status of the family. Locally grown fruits are eaten rather more than imported fruits. Children and young people appear to eat rather more fruit than do adults. Nearly every Cherán lot will have at least a pear, peach, apple, or cherry tree. Tunas, the fruit of the prickly pear, are also eaten as fruit.

BEVERAGES

272 Milk is drunk to a limited extent in season by those few who have cattle. If purchased, it is used mostly for cooking.[18]

Te de naranja is sometimes drunk. It is made by steeping the leaves of a particular member of the citrus family, either fresh or dried. The leaves must be imported in Cherán. In some other villages this is a regular breakfast drink, but in Cherán it is only an occasional drink.

Coffee is rarely drunk by the Tarascans. Most stores in Cherán do not carry it at all.

Aqua miel (ura[illegible], urápiti, "white"), the unfermented juice of the maguey or *Agave americana*, is liked by some but is not very popular. It is usually available in quantities only in May. It is often drunk with sections of peeled orange, pieces of chile, and sliced onions sprinkled with ground red chile and salt. Fer-
[273] mented *pulque* is not at all popular, and what little is produced is mostly sent to Uruapan.

Aguardiente (čaránda) is the most common drink. This is simply unflavored sugarcane gin.

Amargo, a popular Cherán drink, is made by putting ground cinnamon bark, sugar, lemon juice, and lemon rind in a bottle of *aguardiente* for 2 or 3 days. It is taken before breakfast
[757] as a remedy in certain diseases (*reumas, bilis, espantos*).

263 Honey is produced to some extent. It is used mostly in making *atole blanco* or white atole and also as a treat for the children.

SOME FIESTA FOODS

262 Čápata is made by grinding black amaranth into dough and mixing with brown sugar. The blackish paste is spread on banana leaves. It is sold without cooking.

Mole of squash seeds is a luxury dish made
[556] only by the most wealthy and by the *carguero* of Natividad (Christmas). The sauce is made of ground squash seeds, *chile ancho*, tomatoes, spices, and bread for thickening. Beef or pork is the meat served in the sauce.

[273] Beer is sold in some stores, but it is not a common drink.

[234] [18] In Chilchota no cheese or butter is made. Local milk is drunk or made into jojóke, milk thickened by heating. Cheese, butter, and other milk products are imported.

272 Carbonated drinks with artificial coloring
265 and flavoring are sold, particularly at two stands in the plaza where the buses stop. Lemon, orange, cherry, pineapple, and banana are the common flavors. The drinks are brought from Paracho or Uruapan and sell for 5 centavos a quarter-liter bottle. Consumption is small; the stores may have six or eight bottles for 6 months.

A refreshment of water, fruit flavorings, and sugar is also sold in the plaza. Ice is usually available only on Sundays. Only men of the town buy these refreshments when they are in funds and want to try something exotic. Most of the trade is with passersby in the buses, fortunately for the health of Cherán. Water ice is sold from door to door by one or two vendors. It is made locally whenever the dealer can secure ice from Uruapan. Home-made ices are sometimes made when the water in the troughs or streams freezes in the winter.

QUANTITIES AND COST OF FOODS

262 A mere list of foods and recipes has little meaning unless quantities are ascertained. Potentially the Cherán inhabitant has an adequate diet, but most of the population probably suffer from some dietary deficiency, either because of poverty or because of improper distribution and preparation of foods. Vitamin deficiencies probably are subacute to acute in many individuals. Qualitative and quantitative data of great accuracy were difficult to secure, but enough were obtained to be of some value as guides to dietary problems. Below are given some diets collected:

262 One of the poorest families in town, con-
511 sisting of 3 adults and 2 children, eats 2½
556 liters of maize daily, which costs 10 centavos. Once a week the family spends 5 to 10 centavos in chiles and every 3 or 4 days 3 to 5 centavos in cheese. On rather rare occasions, if the family is relatively prosperous for the moment, one-third to one-half liter of beans is purchased at a cost of 5 to 8 centavos. Eggs, meat, and some other items are almost never eaten. It is probable that some greens are eaten from time to time which were not noted by the reporter. Total food cost could average as little as 81½ centavos per week.

A poor family, but not in such desperate

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262 511 556 straits as the one mentioned above, would probably spend, in addition, 1 or 2 centavos daily for sugar, consumed in cinnamon tea, or 3 to 6 ounces of brown sugar for use in *atole blanco*. Atole would occasionally be made of milk, 3 to 5 centavos worth being bought. Such a family [158] would drink milk only in case of illness, when a sick person might get a pint or a little more each day.

A "middle class" family, consisting of 8 persons (2 adults, 6 children aged 4 to 16), eats about 3½ liters of maize daily, about 3½ pounds of meat (a peso's worth) a week, and 10 centavos worth of cheese daily. In addition, about 25 centavos a day would be spent for other foods. (The data on the three diets given above were all collected by Sra. Silvia Rendón.)

What appeared to be two reliable quantitative records, covering 2-week periods, were obtained, the first for a wealthy family and the second for an average family. They are as follows:

Diet records of two families for 2-week period

1. Wealthy family, Don Hilaro Xhemba (10 persons in household):

Maize	111 liters
Meat	13 pounds
Cheese	2 pounds
Fruit	[1]$ 2.54
Milk	1.54
Chiles (about ½ dozen)	.03
Bread (15 pieces, whole wheat, about 4½ inches diameter, 1¼ inches thick)	.75
Beans (brown or red; little less than 3 liters)	.41
Fish (probably about ½ pound dried fish)	.21
Total expenditure	$12.50

2. Average family, Melquiades Romero (2 adults and 5 children):

Maize	75 liters
Meat	12 pounds
Fruit	[2]$0.96

[1] This amount seems high. It would be the cost of 50 to 75 oranges, small to medium size, but undoubtedly it was not all spent for oranges; in fact, it was much more probably spent for bananas, pears, and perhaps apples or peaches.

[2] Perhaps spent for 20 to 30 small to medium oranges, but probably mostly for bananas, peaches, pears, and apples.

In both cases recorded above, vegetables undoubtedly came out of the family garden and are not listed. Probably, from the distribution of purchases, this would mean cabbage daily, perhaps half a leaf per person, boiled with the

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262 511 556 meat. At this time of year there may have been a few meals with immature squash or wild herbs from the woods, stewed with perhaps a little milk or cheese and lard.

146 262 556 511 Evelyn Payne Hatcher kindly consented to attempt an analysis of the diet of Cherán. The results are full of guesswork, but they are at least suggestive. The results show that if yellow maize was used almost exclusively, the diet of a wealthy family would contain no outright deficiencies and in many respects provide more than the usual recommended minimum amounts of various vitamins and proteins and calories. A very poor family, on the other hand, would show a striking deficiency in vitamin B_1 and an inadequate caloric intake. Both diets would give a marked deficiency of vitamin A if white corn were used instead of yellow corn. Despite the inadequacy of the data, there seems little reason to doubt that in some cases, particularly among poor families, deficiencies in the diet are sufficiently large to have a pronounced effect upon behavior and cultural participation (Beals and Hatcher, 1943).

COMPARATIVE NOTES

262 556 511 Some interesting comparisons are afforded by data from other towns. The most complete information was secured from Chilchota in La Cañada.

Chilchota is a Mestizoized Indian town, i. e., the bulk of the population is of Indian descent but a number of Mestizos have moved in, the native language is scarcely spoken any longer, and the people regard themselves as non-Indian. Customs are closely similar to those in the nearby Indian towns, however. Following are some menus collected by Silvia Rendón (for Cherán menus, see Beals and Hatcher, 1943):

Chilchota menus

Luncheons (taken about 10 or 11 a. m.; no breakfast in this case):

Average household:

Broiled beef
Boiled beans
Black atole
Chile sauce
Tortillas

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262 Chile sauce
Tortillas
511 Coffee (black)
556 Broiled beef
Chile sauce
Tortillas

Poor household:
Chile sauce
Tortillas

Broiled beef
Chile sauce
Tortillas

Very poor household:
Greens of wheat plants (boiled)
Tortillas

Wealthy household:
Pork cooked with chile
Fried beans
Tortillas

Fried pork
Boiled beans
Milk
Tortillas

Pork cooked in chile sauce (mole?)
Fried beans
Tortillas
Black coffee

Dinners (2 p. m. or later):
Average household:
Meat broth with cabbage (cooked)
Meat (beef) from which broth was made
Boiled beans
Tortillas

Meat broth with cabbage
Boiled beans
Rice, cooked in water

Pork broth (with rice and bitter *tunas* or prickly pears)
Rice boiled in water
Beans
Tortillas

Fried rice with tomatoes
Pork in chile sauce
Tortillas

Poor household:
Broth
Meat from the broth
Beans boiled with chile and silantro
Tortillas

Wealthy household:
Meat broth
Meat (different from that from which broth was made) cooked with chile
Beans
Tortillas

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262 Suppers (about 7 o'clock in the evening):
511
556

Average household:

Boiled beans
Chile sauce
Tortillas

Boiled beans
Chile sauce
Tortillas

Boiled beans
Whole-wheat bread
Black coffee

Boiled beans
Tortillas
Milk

Very poor household:

Beans
Posole (hominy, probably with a little boiled meat)
Tortillas

Wealthy household:

Boiled beans
Tortillas
Chile sauce
Whole-wheat bread
Black coffee

Boiled beans
Tortillas
Chile sauce
Broiled meat
Milk

Fairly common suppers are tamales (with or without meat) and atole or coffee or a piece of bread (a whole-wheat bread slightly seasoned) and a cup of tea made from the herb nuríte or a type of orange leaf.

In all cases quantities are probably small, except of tortillas. Rarely would more than one piece of bread be eaten, perhaps 2 to 3 ounces at most; perhaps half a cup to a cup of beans; meat, if broiled or boiled, two pieces about 1½ inches in greatest dimension—if in sauce, perhaps a couple of tablespoonfuls with the sauce.[19]

With substitution of different foods, these would represent Cherán menus on the whole, although there would not be so much meat with breakfast-luncheon, but rather atole, while the meat broth and meat would more commonly be served together.

At the Indian town of Sopoco in La Cañada, the following midday meals were observed:

[19] See Appendix 1 for more data on Chilchota.

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[P.56] La Cañada Tarascans

262 Boiled broadbeans
511 Tortillas
556 Eggs cooked on the *comal*
Fried herbs with chile sauce
Tortillas

Boiled broadbeans
Boiled beans
Tortillas

262 184 *Further comparative notes (collected by Silvia Rendón)*—Possibly because Capacuaro is a smaller village with extensive woods close by, more wild animals are used for food. These include doves, *huilotas*, bird eggs (kuašanda), rabbits, flying squirrels, squirrels (kuiníkes), deer, gophers (khumás), wood rats (heyáki), peccary, jackrabbits (apácis), foxes, armadillos, bee larvae, larvae of a ground dwelling bee (*jicoteras*), worms from unidentified plants (talpanal), fresh water crawfish (čapus), wild crab apple worms (kauaš), and *tlacuache* (takuače). It is to be suspected that in Cherán, where persons closely associated with the woods are not often in the town, our list of wild animal products eaten is much shorter than it should be, although it probably represents the common diet.

[264] Two meals a day are eaten, at 11 o'clock in the morning and in the evening at varying times. In one house the morning meal was tortillas and beans; in another, coffee and bread; in a third, coffee and tortillas sweetened with brown sugar; in a fourth, atole nuríte and tortillas; in a fifth, chile sauce, boiled greens, and tortillas. The second meal most commonly consists of squash or chayotes, meat broth with cabbage, meat and chile, and tortillas.

Special dishes not already reported include the following:

Tamalitos de čápata, small tamales of black amaranth seeds (čapata; the plant is puári), made to sell in Uruapan at three for 5 centavos. The seeds are ground and cooked in maize leaves like tamales.

Ičuskata, *gordos* filled with beans, for sale in Uruapan at 5 centavos each.

Yurúričúskatas, *gordos* made of maize dough mixed with brown sugar. In cooking, a number of pebbles are put in the *comal* and the *gordos* are placed on top of these so they cook more slowly.

Toasted tortillas (harípukata), eaten frequently at meals.

184 Maize stalks, chewed as a sweet to a greater
262 extent than in Cherán.

Salt-rising bread made by one baker once a week. It sells at 10 centavos a piece.

The daily adult consumption of corn was estimated at three-eighths of a liter.

In Angáhuan, a large, isolated, and conservative western sierra town, two meals daily are
[264] also the rule. The usual hours are 10 a. m. and 6 p. m. Children and sick people may also eat tortillas or cold kurúndas at other hours. Tortillas are made by only a few women, the kurúnda taking its place. The kurúnda here is not wrapped in the maize leaf (k'an) but in the husk of the ear (šarákata).

The beef broth (čurípo) is made for preference from slightly spoiled meat or dried meat. (This is also true at Parícutin.) As there are no butchers in Angáhuan, butchering is done at home. Some of the meat is sold; the rest is
[251] cut in strips, rubbed with salt, and dried on the house roofs.

The agwákata tamale is made with beans like that of Cherán. It is eaten only for the
[196] fiestas of Candelaria (February 2), Carnival, Santa Cruz (May 3), Corpus, and at weddings.

Máákuta is a *posole* made of boiled black
[252] maize (čiráns), boiled beans, silantro, and chile. A little dough of ground black corn is added as thickening. This is served to guests at New Year's and at the fiestas in December and July. At New Year's the *posole* is accompanied by huge kurúndas weighing about 2 kilos.

272 Little milk is consumed. However, the town
184 produces enough cheese for export.

Agua miel is consumed in season. Pulque is little liked. A common drink is *"tepache"*
[273] (čarápe), which is slightly alcoholic.[20] It is made of barley, boiled in water and left in the water for a week. Carbonate and sweetening are then added.

Papaya juice is drunk and the seeds are toasted and eaten.

262 Men working in the fields or woods often
184 carry maize on the cob which they shell and
252 toast by a fire. This is called *"esquite"* (guaníto). They also carry *"esquite"* from home already prepared and mixed with brown sugar.

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[20] In Oaxaca, "tepache" is pulque reinforced with brown sugar and is more than "slightly" alcoholic.

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184 261 In times of famine, acorns are cooked like maize for *nixtamal* (boiled with lye or wood ashes), ground, and made into *gordos*.

782 532 A special "bread" of maize is used as an offering at the house altar. This is made of maize toquera (halfway between green and mature corn) cooked like *nixtamal*, ground, and shaped. It is cooked first on the *comal* and then hardened by placing it on embers. This bread is never eaten but is hung from strings in front of the altar. The shapes include quadrupeds, both with and without horns, crescent moons, and, most interesting of all, hearts represented in pre-Hispanic style.

184 262 In Parícutin a few divergences may be noted. Most people eat atole flavored with nurite, without sugar, salt, or chile every morning. The wild crab apple is not eaten at all. The diet of many poor people consists almost wholly of atole and tortillas with chile sauce; this is spoken of as "eating dry," *"se come a secas."*

In San Juan Parangaricutiro, the Mestizoized *cabecera* for Angáhuan and Parícutin, the favorite atole is *atole de grano*, made of tender green maize, seasoned with green chile and an herb called *anisillo*. The atole is colored green with ground squash leaves. This atole is made especially during Holy Week. (Because of the lower elevations, the region of San Juan has green maize much of the year.) Wheat bran is used to make a type of *gordos*. Pulque, [273] mixed with chile sauce, is drunk during the rainy season. *Agua miel* without flavoring is drunk also.

EATING CUSTOMS

264 Eating habits seem to vary little from town to town. In Cherán food is served on tables only on special occasions by the more sophisticated, especially when an outsider is present. Usually, the persons being served sit on low stools or benches, holding the main dish in their hands. Tortillas, tamales, salt, and other foods or condiments are placed in baskets or dishes on the floor.

Generally the women eat last, but this is primarily due to the necessity of constantly warming or cooking tortillas rather than to any feeling of propriety. If there be more than one woman in the household, one or more may begin to eat with the men after the rush of

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first, then the men, and then the married women. When in the fields or woods, Chilchota men make the fire, heat the food, and serve the women. However, they always turn the tortillas on the fire with long sticks; turning the tortillas with the fingers would be womanish.

Changes in food habits at Cherán probably have been marked in recent years. Old people say that "anciently" the major diet was cabbage and tamales. Lard was disliked so much that people could not eat it. Although the change in Cherán is attributed to the highway and the entry of Mestizos, probably the large-scale migration from Cherán to other places had much to do with the change. Although it is difficult to point out specific changes without comparative data from conservative towns, the major differences seem to be the displacement of tamales by tortillas and the eating of fiesta foods on ordinary occasions. Soft drinks, cookies, and other manufactured foods are also becoming more common.

ECONOMICS

changes on a barter basis are often calculated in terms of the money values of the goods or services involved.

The fact that Tarascan economy is a money economy signifies more than ease in the study of exchange; it also indicates at once that Tarascan economy is far from primitive as that term is usually understood. Actually Tarascan economics, like the rest of Tarascan culture, is strongly influenced by European culture. It does not necessarily follow, however, that Tarascan economics is not distinctive. The long period of assimilation and reintegration that characterized all of Tarascan culture occurred also in the economic field, and the result is a hybrid. Nevertheless, Tarascan culture is more European in origin than is that of most Mexican Indian groups. Moreover, especially in recent years, the economy of the outside world has impinged increasingly upon the Tarascans so that in 1940 there were individuals whose livelihood had been seriously affected by the outbreak of war and who, furthermore, were quite aware of their relationship to world markets.

231 pig takes from 1 to 2½ *fanegas* of maize to
434 fatten, valued at from $5 to $7. According to
size, the animal may bring from $30 to $75, a
[435] gross profit on the fattening process of from $12.50 to $70.00. This would be 5 to 7 pesos less if the pig was bought. If an adequate market were developed, or if sales and transport facilities at a distance were to be developed, pig raising might be a more important activity, although an increase in the number of pigs would decrease the amount of foraging possible and would require more feeding.

236 Sheep raising is engaged in by only a few.
434 The reliability of the major informants is suspect, but the evidence suggests that sheep raising is profitable. The major expense is the initial cost of the flock and the wages of a
[435] shepherd. Sheep are worth $2.50 to $5.00 apiece. Shepherds' wages vary with the size of the flock, but probably rarely exceed $20 a
[465] month plus a *fanega* of maize and one sheep for food; most shepherds receive considerably less, often only $5 a month without food. Often several small owners merge their flocks and hire a single shepherd.

Income from sheep is mainly from wool and payments to have the flocks bedded on farm land. Sheep average a pound of wool a year (this seems low but the sheep are of poor
[435] quality), which sells for $1 to $1.25. A fair-size flock of sheep would bring 50 centavos a night for fertilizer. A few sheep are sold for
[262] meat outside the village; almost no lamb or mutton is eaten in Cherán. No data were secured on prices. Mortality on sheep is high, but again no usable data were obtainable.

A flock of 200 sheep studied represents an investment of $750 in theory although it probably was built up by natural increase from a smaller flock. The shepherd receives $20 a month, 1 *fanega* of maize worth at least $5, and a sheep worth, on an average, $3.75, or a total of $28.75 a month ($345 a year). Wool would produce $200 to $250 a year. Bedding on farm lands would produce probably 50 centavos a night for this flock for 110 days (estimated) or $55. Total income from these sources would be $255 to $305 a year. The natural increase may safely be assumed to be 75 head. Sold at $2.50 apiece, they would bring in $187.50 a

A special food for Easter week is
796 tamales of black corn mixed with layers of
●[262] boiled beans milled on the metate.

MINOR FIESTAS

A number of calendrical church affairs receive minor attention. The day of San Juan, June 24, boys ride about the streets on horseback. Girls fasten live pigeons with cords, and men of the family raise and lower them from the housetops. The boys try to catch the pigeons. If they succeed and the pigeon survives, they take it home. If pigeons are not available, chickens of similar size are used. Christmas, New Year's, and the Day of Kings also receive special attention. As these functions are carried on by *cargueros* or *mayordomos*, their description is left until later. The Day of the Dead is also in some measure a community celebration. As has been noted, the *municipio* requires the young men to clean up the cemetery for this occasion. The actual ceremonies, however, are individual and are described in connection with the death rites.

SECULAR FIESTAS

527 A number of minor fiestas appear to be celebrated which have no religious motivation connected with the church. These are patriotic affairs and are not taken very seriously. On May 5 there is a procession with the band. The bells of the church are rung and *cohetes* are fired. On September 16, Independence Day, there are usually a parade, music, and perhaps a speech or two. A great many people get drunk over the week end, but there is little formal celebration. In 1940 the Cherán band went to Chilchota for the fiesta, and there was even less celebration than usual.

HOUSE-ROOFING FIESTA

342 Although most private fiestas are described
574 elsewhere, the fiesta celebrating the roofing of a house is described here because the data on house construction have been published in another paper (Beals, Carrasco, and McCorkle, 1944). A house-roofing fiesta is celebrated whenever the shakes are put on a new house. The following account describes the fiesta held by Pedro Chávez.

The house-roofing fiesta is virtually an obligation on the part of the house owner. He is

846 757 bathed the infected parts with *yerba de cáncer*. The entire herb was boiled and then hydrogen peroxide was added to the brew. Two treatments daily for 2 months finally cured the patient.

834 846 Husband and wife do not resume sexual relations until at least 35 days after the birth; in most cases the period is 40 days. Husbands are sometimes said to behave badly in connection with the first pregnancy; they have "whims" and "weariness," probably a polite way of saying that they resent the loss of sexual privileges and the lessened attentions of their wives. Some go with other women.

844 262 Shortly after the delivery the mother is given her first food. This may be chocolate, milk, and a bit of bread. Some midwives give the mother *rafino* or coffee but others prefer white atole "because it strengthens the blood." A chicken may be killed the same day and put on to cook to make broth to be served to the mother the following day. Oatmeal is also a favorite food for the mother in the early days. Broth from beef is prohibited but broth from mutton is permitted during the first week. The second week, additional foods may be taken, but nothing "cold." Tortillas may be eaten after the second day. In general, pork, chile, fish, and beans are forbidden for from 3 weeks to 40 days. Fruit and vegetable greens must be eaten sparingly in the latter part of the period, not at all in the early part. There is no restriction on salt. Beef is apparently forbidden only in the first week; cheese is mentioned as a permitted food by some. In some cases the mother is fed the atole known as kágwash kamáta for several days after birth. In view of the general agreement that chile is forbidden, probably this ingredient is left out when the atole is made for mothers. According to some, the midwife stays on the same diet as the mother until the time of the mother's first bath.

844 Fathers have virtually no restrictions. The only one discovered is that he should not kill poisonous snakes. If he does, the newborn infant may have bloody discharges from nose and mouth. The cure is to catch a rat, remove the intestines, add to them some *rosas de castilla* and a few grains of *tequisquite* and place on the child's stomach.

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34

Sierra Tarascans
Mestizo
La Cañada

844 According to Rendón, women in Mestizo
846 Chilchota observe no special diet before delivery.
262 Births are attended by midwives, who charge $2. A mixture of egg and flower is sometimes rubbed on the abdomen to lessen labor pains if these are severe. Massage and irrigations with water and soap are used to accelerate birth. After delivery the diet is based on chocolate and atole. After a few days, chicken broth and chicken are added but beef and beans are not eaten for 72 days. The atole is called púʧkua and is made of maize cooked without lime, ground on the metate, and cooked in water without sugar. If there are hemorrhages the patient is given rubbed (shredded?) parsley in water. The mother stays in bed for a week. On the eighth day she bathes.

846 Rendón reports a mild couvade in La Cañada pueblos. The mother does not eat salt after the birth, eats atole of the same type as at Chilchota, and cooked greens. The fathers stay in the house several days without working.

INFANCY

844 When the birth is in kneeling position, as is most common, a mat and clean cloth are placed on the floor to receive the child. The cord is not cut until the afterbirth is delivered. If this is slow, the mother's knees are massaged. The cord is then tied with thread and cut with scissors (a knife may not be used). According to some the cord is cut about a span length from the umbilicus (thumb to forefinger with both extended). Others say this is the length for girls and that the length for boys is a *cuarto* (this cannot mean a quarter as most are agreed that the length for a boy is greater than for a girl). Some families ask that the cord be cut longer "so the child will relax easily." Cotton is applied, sometimes preceded by anointment with oil, and a band fastened about the abdomen. Some say if this is not done the boys would not have strength and the girls would be "goers," *andulantes*, that is, they would probably have affairs with men. Some wipe out the child's eyes with cotton, and others drop a little lemon juice in the eyes. Some oppose this and do nothing unless a gummy secretion appears, when the eyes are treated with flowers of Castile and San Juan.

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34

841 track of the periods are used but some account is kept of the phase of the moon and an approximate idea formed. The normal menstruation is regarded as lasting 3 or 4 days. Slight or excessive flows during the period are believed to be bad. No special garments are worn, but the ordinary underwear is carefully washed after the flow ends.

[834] Women should not have relations with men during the menstrual period, and most women do not resume relations with their husbands until they have bathed, although some do so as soon as menstruation ends. Violation of this [753] rule is believed to be bad for the men and to cause them to contract a disease with ulcers.

841 Women may prepare food for themselves and others, but they must not eat certain foods.
● 262 These include "cold" things, such as avocados or prickly pears. Beans, if eaten, must be consumed with quantities of onions. Rice, pork, and preserved chiles (because the liquid is very "cool") are also believed to be bad. Dried chiles may be eaten. *Aguardiente* is also avoided, although a little in coffee or orange-leaf tea is believed to be helpful. The majority, if possible, drink chocolate in the mornings even though they may not normally do so or may even dislike it. In connection with the concept of "coldness" it should be noted that this refers to the supposed effects on the person, not to the quality of the thing itself. Cold water, for example, may be consumed freely. Aside from sexual restrictions, men have no special rules to observe when their wives menstruate.

MARRIAGE AND SEX RELATIONSHIPS

581 Marriage is the normal state of the Cherán adult and unmarried persons are relatively rare, except among the aged. Although sexual inverts were reported, in every case they had 838 married. One woman is known to be an invert and is called *toro-vaca*. As a girl she attempted to seduce other girls, and a woman told Rendón that in her childhood the individual in question once tried to drag her into a vacant lot, stopping her mouth with a *rebozo*, but she tore loose and screamed and was rescued by her father. Various charges were also made against the woman in court, but nothing was ever done.

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34

121 made can a practical program be formulated for Cherán. Anthropological studies by themselves offer no easy and golden pathway to the solution of Indian problems. The most thorough study of the Tarascans must be ineffective practically if the necessary administrative objectives are not clearly defined. The data of an anthropological study such as this can do no more than offer hints as to the "soft" spots of the culture, the areas in which change can most easily be introduced, as well as the *costumbres*, the points of resistance, such as ceremonies (not necessarily including religion), dress, dances, weddings, and death customs. The study can likewise indicate some of the major problems of Cherán, such as the underproductivity of the soil and agricultural technology, the inadequate mechanization, the probable existence of an overly large population to permit any marked rise in economic status, the need of creating new attitudes in spending (for Cherán could finance many public improvements itself), the inadequacy of the water supply, the lack of public health facilities, and the shortcomings of the educational system.

In relation to these problems, further studies are needed in which the anthropologist is aided by technicians in soil use, farming, forestry, and animal husbandry techniques. Scientific-

[text continues on top of p.213b]

APPENDIX 1

DATA ON FOOD PLANTS AND FOOD FROM LA CAÑADA

The following data were collected by Silvia
121 Rendón in the pueblos of La Cañada, the next valley to the north of Cherán. As the valley is at a lower elevation than is Cherán, some differences are noticeable in techniques and in plants grown. Unless otherwise specified, the data are from Chilchota; although far from complete, they are included here because they afford some interesting comparisons, the more so in that Chilchota is a Mestizo town today.

241 Plants cultivated: All of the plants culti-
262 vated in Cherán as well as many others, are found in La Cañada. Black maize is grown in the fields, rather than in the house lots, but, as in Cherán, it is kept separate in storage and is used only for certain types of tamales and

[text continues on middle of p.213b]

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
[p.213 b] Sierra Tarascans
La Cañada

121 ally, such studies should be of great aid also, permitting better understanding of the fundamental limitations on Cherán culture.

Once a set of definite objectives has been established, the data of the anthropological study will be of considerable use in formulating a concrete program and in developing Tarascan cooperation. Moreover, the introduction of a program in itself, creates changes in the cultural situation. The dynamic quality of culture makes it important that administrative programs be accompanied by further study and be flexible enough to adapt to the changing situation.

Despite these remarks on the practical problems of government in the Tarascan area, it should be emphasized that the present study is primarily concerned with scientific objectives. These objectives happen to be closely related to practical considerations, for administrative objectives in Mexico call for culture change in some measure. Cultural processes and the function and interrelation of the parts of a culture emerge most clearly from dynamic situations rather than from static studies without temporal extension. Not only practical but scientific objectives can be served by the study of Cherán culture in transition.

APPENDIX 1

FOOD FROM LA CAÑADA

241 atoles. Wheat is sown twice a year; one plant-
262 ing is in June and it is harvested in December; the second is in November, in the house lots, and it is harvested in May. Beans are grown more extensively than at Cherán; the harvest is exclusively by women.

Among the plants generally grown in Chilchota is amaranth (*bledos*). The cultivation is not commercialized, each family growing a little for its own use. Amaranth is used by Indians of La Cañada for making sweets; in Chilchota it is employed in sweets, certain atoles, and in an uncooked tamale resembling a tortilla which is sold in Capacuaro.

245 A considerable number of fruits are culti-
262 vated in Chilchota. Mangoes of the *criollo* and

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34

245 262 *Manila* varieties are grown extensively for export. Scarcely a house lacks a sweet lemon tree. The fruit is sold in bulk to dealers before it is ripe. Bitter limes are sold the same way; the prices are less than for sweet limes, but people in Chilchota say they are more pleasant in flavor. Oranges are also grown extensively in orchards. Two varieties of guavas are utilized. The type known as *corriente* grows wild and is used only by poor people who cook the fruit in honey. The "fine" type is cultivated and sold. A few bananas are grown of the type known in Mexico City as *platano bolso* and in Uruapan as *corriente*. The local name is *Costarica*. A "fine" and an "ordinary" variety of peaches are grown; the entire crop is exported. Cherimoyas occur in most orchards, but not in such quantity as in the Tarascan towns of La Cañada. The product is all consumed locally. Some *zapote blanco* is cultivated in Chilchota; more is grown among the Tarascan towns. Cherries grow half-wild, being planted but not tended. The fruit is eaten raw or made into confections. A fruit known as juakinicuiles (in Mexico City, jinicuiles) is planted but not cultivated; it is much prized. Citron is grown in some orchards; all the product is sold. The tejocote is not used at all in Chilchota, and some people even were amazed at the idea it should be eaten.

Coffee is extensively cultivated, sharing with lemons the major place in the orchards. Almost all the coffee is sold in the bean in Zamora, and the coffee consumed locally is brought from Zamora.

244 262 Three varieties of squash are cultivated. Calabaza Tarasca is grown in the fields and is all consumed in the town, either boiled or roasted in hot ashes. Calabaza de Castilla is grown in two varieties, one with hard shell and one with soft. Both are exported. A variety called sopoma grows in the fields and is all used in the town, either to make sweets or as greens for broth or stew.

222 262 The principal wild plant used for food in Chilchota is a species of prickly pear (*tuna*), known as jococoxtle. It is used in certain of the beef stews or is ground with chile to make a sauce placed on the table.

253 443 262 Meat is mostly butchered on Saturday and Sunday, and the main sales take place on

443 Sunday. The places where meat is sold are
253 called *"despachos"* and are announced by hang-
262 ing out a red flag on a standard. Four or five places sell meat remaining from Sunday through most of the week. No distinction is made in price between meat with bone and meat without bone, but on request one will be served only meat; in the Tarascan towns the buyer has to take what is cut. Pork is preferred to beef. Beef hides are sold to dealers; those of swine either are made into cracklings or are pickled in vinegar after rubbing with chile, onion, garlic, and fragrant herbs.

226 Some fish are caught with nets in the river
262 passing Chilchota. The fishermen are only semiprofessional, fishing when they have time and selling the catch only if they have more than can be consumed at home. At least one
224 man, a farmer, hunts deer in his spare time.
262 He sells the flesh retail like beef. The dried
237 deer blood, hoofs, and hair are sold for magical or medicinal uses.

Black maize is used primarily to make
252 *chapatas*, tamales of black or red maize, sweet-
262 ened with brown sugar and mixed with black or red amaranth. It is also used to make *atole de cascara de cacao* (atole of chocolate hulls) and *ponteduros*, which are toasted immature corn ground and mixed with brown sugar sirup.

Greens (*quelites*) of wheat are made from
423 a wild plant or weed which grows among the
252 wheat and are greatly liked in Chilchota. A
262 curious custom exists in that anyone may help himself to these greens, entering into wheat fields belonging to others either with or without permission. Anyone objecting would be severely censored in Chilchota. Pozole is also made from green wheat toasted, ground, and mixed with chile, salt, and *"epazote."* The time for this is May at the harvest; it is "hot" food.

A food made from the chayote root is *sagú*.
252 The skin is removed from the tubers and the
262 pulp ground to a sort of flour. The flour is placed in water for 2 or 3 days, being stirred frequently. The flour is then allowed to settle, the water drained off, and the flour dried. Although it is used in various dishes, the main
[846] use is to feed small children and women recently delivered, when it is cooked in water, either plain or sweetened with honey. The plain boiled chayote root, uarás in Tarascan, is sold

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
[p.215a]

La Cañada

252 262 extensively in all La Cañada towns and is much liked.

One of the favorite meat dishes in Chilchota is not unlike the čurípo of the Tarascans and is called "*espinazo.*" It is a broth made from the backbone of the pig, flavored with chile and including cooked bitter prickly pears known as jococoxtles. The broth is usually accompanied by boiled rice.

237 252 262 Not much sausage is made in Chilchota, but the blood of the pig is greatly liked, both in Chilchota and the Tarascan towns of La

[text continues on top of p.215b]

APPENDIX 2

THE CEREMONIAL ORGANIZATION OF CHILCHOTA

121 [578] The following information on the ceremonial organization of Chilchota was collected by Pedro Carrasco. Due to political struggles, the ceremonial organization was not in existence from 1932 to 1940. The data given are representative of conditions as they existed before 1932, amplified by data on the partial revival of the ceremonial life of the town in 1940 (the differences are indicated by past and present tenses). The organization and the observances present many interesting parallels and differences from Cherán, particularly in view of the fact that Chilchota is a Mestizo town today. Carrasco found only one man of about 90 who had been reared in a Tarascan-speaking family; nevertheless, culturally Chilchota evidently is still somewhat of a Tarascan town. Many Tarascan words survive and such old institutions as the hospital are better preserved than in many Tarascan towns.

796 621 The ceremonial organization is linked with division of the town into *barrios* of San Juan and San Pedro. Two other *barrios* exist, Uren and Chapala, but they appear to be recent additions and, unless otherwise specified, only the first two *barrios* are referred to. The principal

796 624 ceremonial offices and their relation to the *barrios* are as follows:

Office	*Barrio*
Mayordomo of the Hospital	One year from San Juan, the next from San Pedro

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[text continues on middle of p.215b]

1:Beals E-5 (1940-1941)1946 NU34 Tarasco NU34
[p 215b] Sierra Tarascans
La Cañada

252 Cañada. The blood is placed in the cleaned
262 entrails, together with other visceral parts of
237 the animal, which have been cut into small pieces, *silantro*, chile, and onion. At some point the mixture is cooked. By the time the product is sold, the blood has solidfied. The purchasers remove the mixture from the casings, mill it on the metate with water, and fry it with lard.

Bread of the type known in Tarascan towns as *pan grueso* is made in Chilchota. Most bread, however, is brought from the larger neighboring town of Tangancícuaro.

APPENDIX 2

ORGANIZATION OF CHILCHOTA

Office	*Barrio*
Mayordomo of the patron saint, Santiago	One year from San Juan, the next from San Pedro
Carguero of San Roque or Karačakape	*Barrio* of San Juan
Carguero of San Nicolás	*Barrio* of San Pedro
Two *vaqueros*	One from each *barrio*
Four *roseras*[1] or nánančatis	Two from each *barrio*
Two *regidores*	One from each *barrio*

[1] One of the *roseras* is called *pondompari*, and one *capitanero*. They are always of different *barrios*, the positions alternating from one *barrio* to the other each year.

796
624

All these individuals are called *cargueros*. It is they who bear the expense of all religious festivals.

[184] Unlike Cherán, this group of *cargueros* forms a hierarchy through which individuals pass, ultimately to become one of the *viejos principales* (principal old men) or tarépiti. The sequence is as given, the first position being that of *mayordomo* of the hospital, then *mayordomo* of Santiago, then either *carguero* of San Roque or of San Nicolás, depending on the *carguero's barrio*, then *vaquero* (while female members of his family serve as *roseras*), and finally *regidor*. After this the *carguero* is an "old man," a principal. The old men and the *cargueros* who have occupied the positions of both *mayordomo* of the hospital and *mayordomo* of Santiago form the group known as the *cabildo*.

In addition to the hierarchical offices, there are a number of minor positions, the most

3:Beals, Carrasco & McCorkle E-5 (1940-1942)1944
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362 used for sleeping ordinarily. This seems to be
184 true of the Lake, Zacápu, and Cañada sections. How far this is a function of the type of architecture and how far it is due to climatic conditions remains to be established. In general, the Sierra region is colder and sleeping is in the kitchen even where masonry-adobe buildings exist.

CEREMONIAL AND SOCIAL FUNCTIONS RELATED TO THE TARASCAN HOUSE

342 and are expected to attend or send excuses. When
431 they arrive, they give the householder or his wife
476 a package of cigarettes or 10 or 15 centavos, which is regarded as the equivalent of the package of cigarettes. The men present their cigarettes to the man of the house, the women to the wife.
[576] The man salutes those who make this present, tipping his hat and shaking hands. The women also shake hands and curtsey. The women help in the preparation of food, while the men help the master builder and his assistants with the roof.

342 After the work is well along, a bottle of *aguar-*
264 *diente*, or *charanda*, is circulated at intervals
476 among those working. When the work is completed, the men are fed, then all the boys. They are all seated on two logs facing one another. Male relatives of the house owner assist in serving; sometimes a *compadre* will aid also if he is a particularly good friend of the householder. The women eat in a group near the fires where cooking
● [262] is done. The food is the regular ceremonial food: tortillas, beef stew with chile and cabbage (čurípu), and tamales (kurúnda).

342 The master builder meanwhile leaves the house and shortly afterward returns with his wife and other immediate members of his family. They are seated on a mat facing the new house and are
[531] fed there. A cross with an arch over it, decorated with paper flowers, is set in the middle of the ridge of the roof. It is said to protect the house against violent storms and the devil.[6] The house

[6] Use of the cross on the house is common throughout the Tarascan area. In most of the Sierra towns, the crosses are only some 10 inches (25 cm.) in height, but in Particutin they are over a meter (39 in.) tall. Here the cross is placed against the house wall, and often with a vase or jar for flowers tied to it. Tile-roofed houses have the cross painted in white on the tiles, fastened to the wooden "shoe" supporting the ridge pole, or carved on the capital.

In Paracho, the priest is often brought to bless a new house. Two men go to request the priests' presence. They are regarded as godfathers of the house and become *compadres* of the house owner and the master carpenter.

242 November; land fallowed until following Novem-
243 ber.) Often fallow and planted fields are alternated between the slopes and the plains in the temporal lands.

Fertilization in field agriculture.—Tarascans make little or no attempt to apply fertilizer to maize fields. Occasionally animal manure (*estiércol*) from the stables in the house lots is spread over small parts of fields nearest the village.[*] Sheep and cattle, however, are turned into the fields after harvest, and shepherds are often paid to bed flocks in the fields. No commercial fertilizer is used, owing to its high cost. As mentioned above, new *desmontes* are fertilized by wood ash from freshly burned brush.

Uses of Maize—*Food.*—As in all indigenous
262 areas of Mexico, maize is the principal foodstuff
252 of the Tarascans. Six types of maize foods are common among modern Tarascans: (1) green corn, or roasting ears (*elote*, tiríapu); (2) toasted kernels ground to powder and mixed with sweetening (*pinole*, japúmata); (3) maize dough wrapped in maize leaves and boiled (*tamal*, k'uɪúnda); (4) maizé gruel, or dough dissolved in water (*atole*, kamáta); (5) boiled maize kernels with shell removed (*pozole*, máskuta), similar to North American hominy; (6) thin cooked griddle cakes of maize dough (*tortilla*, ičúskuta), at present the most important single food item.

Elote foods.—Green corn is prepared by parching and by boiling. Without removing the inner husk, ears are often parched in the direct flames or under burning coals. Corn so prepared is called uiríkan in the Sierra. Ears roasted with husks removed are termed "uiríkata." Boiling with husks removed (jáman) is also common. Green ears are preserved by boiling and drying in the sun for many weeks. In the dried form they are called uačákata, and the consistency of fresh corn is revived by soaking and reboiling. Other types of maize foods are made from *elote:* a tamal (učépu) from early green maize; various atoles (atole de grano, atole de t'okéri, de uačákata, etc.); maize which is between the green and mature states (t'okéri) is often ground, shaped into small cakes, and boiled. The maize most frequently used for

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[*] In only one instance did the writer observe systematic application of manure. This was near the new Tarascan town of Caltzontzin, 5 km. east of Uruapan. In planting maize, the planter was followed by an individual who dropped a handful of manure over the seed. A plow followed, covering the seed and manure.

4: Wesr K-5 (1946) 1948 NU34 Tarasco NU34
[P 40-a]

262
252 the above-named foods is the highly colored flour types grown in the house-lot gardens.

Pinole has the widest distribution and is possibly the most ancient of the maize foods in the New World. Among the Tarascans usually yellow maize from the *desmontes* is employed for pinole. The grain is toasted on the *comal*, then dry-ground on the metate, piloncillo being mixed in during the grinding process. *Pinole* is used almost exclusively for food on long trips. *Esquite* is prepared also by toasting whole grains of dried sweet or black *elote* corn on the *comal*, but it is not ground.

The preparation of tamales, pozole, atole, and tortillas among the Sierra Tarascans is discussed by Beals (1946, pp. 49–52). In preparing all four types, hard-shelled maize is first soaked and cooked in lime water to soften or remove the hard outer shell that covers each grain. (Beals mentions the use of oak ashes in soaking corn for pozole.) For tamales, atoles, and tortillas the soaked grains are wet-ground on the metate or in power-operated grinding mills (*molinos de nixtamal*). The fact that they form an essential part of fiesta and ritual foods of most Mexican Indians suggests that tamales and atoles may be more ancient than tortillas. The latter are commonplace in each of the two or three daily meals and carry no ritual significance. Moreover, the varieties of both tamales and atoles are numerous. Beals describes 10 atoles habitually made in Cherán; 11 kinds were noted in Sicuicho, only 5 of which were similar to those in Cherán. The varieties of atole are ordinarily distinguished by the addition of some flavoring, such as ground blackberries or herbs.

231 *Animal feed.*—Maize grain is commonly fed to livestock, notably for fattening hogs. Yellow corn, mainly Mountain Yellow, is considered the best for feed, as it has the highest oil content of all Tarascan corns; moreover, apparently the yellow color gene is associated with proper vitamin content for animal growth and fattening.[9]

439 *Sale of maize.*—The Tarascan Sierra is primarily a subsistence area in terms of maize, but when crops are good surplus grain is sold to buyers from Zamora, Tangancícuaro, Uruapan, and Zacapu. The surplus maize districts are

[9] According to Edgar Anderson (personal communication), in Jalisco the Yellow Mountain maize brought down from the highlands sells at a premium in the bean-raising districts south of Guadalajara.

243 are planted together, the seeds being separated according to color after the harvest. The plant is cut with a sickle in November or December, the grain threshed in an open space in the fields and stored in small ollas in the troje.

The cultivation of amaranth is disappearing among the Tarascans; it would probably die out rapidly if women did not constantly remind men to plant it every year. In some Sierra pueblos it is no longer grown, but grain is brought in from [439] other towns, particularly from Pamatácuaro and its surrounding ranches and from Capacuaro.[77] Little is grown in the Lake towns or in La Cañada, the grain being imported from the Sierra. In a few pueblos it was claimed that *alegría* was neither cultivated nor eaten: Paracho, Huánsito, San Jerónimo, Puácuaro, Napízaro.[78]

262 In terms of quantity consumed, amaranth has little importance in present Tarascan diet. Its significance lies in its relict position in Indian culture. Today the most widespread amaranth 252 food among the Tarascans is a tamal called "č'apáta," made from a mixture of ground maize and *alegría*. Blue or black ekuáru maize is dry-ground on the metate; red or black *alegría* is then ground into the maize flour; a sweetening (piloncillo) and water are stirred into the mixed flour, and the resultant dough is wrapped in maize husks and boiled in an olla. In some pueblos of La Cañada ground *alegría* is mixed with wheat flour and piloncillo, of which tamales called č'apátas de trigo are made. Moreover, *bolitas*, confections made of white amaranth, are made, but are more common in adjacent mestizo towns. The grain is toasted on the *comal*, then mixed with honey or a paste of piloncillo to make small cakes. These are commonly sold at fairs or on fiesta days.[79] Few ceremonial or religious uses of amaranth were found in the Tarascan pueblos.[80]

[77] Curiously, the Sierra pueblos which no longer cultivate *alegría*, but import grain for home use, are some of the more isolated, such as Urapicho, Coeucho, Nurio, and Pomacuarán. In these towns no reason was given for not growing *alegría*. Possibly the inhabitants found it less bothersome to buy the grain than go to the trouble of raising it.

[78] Modern amaranth cultivation extends beyond the present limits of Tarascan speech in Michoacán. It is still grown and used in the former indigenous towns of Apo, Tancítaro, Sirahuén, Opopeo, and in some mestizo ranches north of Uruapan.

[79] In Pamatácuaro an atole is made of amaranth and black maize. Such atole is widespread in the highlands of northern Guerrero (Hendricks 1945-46, vol. 1, p. 35); and is probably encountered in other indigenous areas of Mexico. In Atapan a pakáta (ground grain boiled in water to a solid mass) is made of red *alegría*.

[80] In Pamatácuaro atole of black *alegría* and black maize is taken especially at the maize planting celebrations. In Sicuicho č'apátas are eaten at both the maize planting and harvesting fiestas. In other pueblos special uses of amaranth were denied.

4: West K-5 (1946) 1948 NU34 Tarasco NU34
[P. 44a]

243 tion.[87] Owing to dry conditions and usually poor
[132] soils, yields are low. The infrequent light winter rains (*cabañuelas*) often determine the success or failure of the temporal crop. Another wheat type, a white soft variety, is called *"trigo de aguas"*; sown in June or July and reaped in November or December, is seen in all parts
[312] of Tarasca. Most of the wheat crop of La Cañada is irrigated, being sown on the valley flats in December and harvested in May.[88] In the Sierra wheat is relegated to the less fertile slope land and *desmontes*, where it is rotated with maize. In the lake area and the northern plateau towns, where the grain is likewise a rotation crop, it is cultivated on both plains and slopes. It is occasionally sown in the house-lot gardens in all parts of Tarasca.

Primitive European methods are used in wheat cultivation (pl. 6). Land is prepared by plowing with oxen, and seed is sown broadcast and covered with a brush harrow. Grain is cut with the sickle (*hoz*), bundled and tied by hand, and threshed in the *era* (an open arena floored with stone or packed earth) located in the town or in the field. Threshing is accomplished by driving mules or burros over the bundles of wheat, but where sufficient animals are lacking, it is done by flailing. The grain is separated from straw and chaff with the tarákua, or wooden spade. All straw is carefully saved for animal feed. (Engine-powered separators are just beginning to appear in the area.)

252 One of the most interesting aspects of wheat
●262 culture among the Tarascans is the varieties of food prepared from both metate-ground and milled flour. Those made from grain wet-ground on the metate include *tortillas de trigo*, a common food in La Cañada, but eaten on fiesta days (e. g. Corpus) in the Sierra towns.[89] In Charapan the tortillas are thin, round cakes often 1 to 1½ feet in diameter, which are cooked on the comal. Thicker tortillas, or *gordas*, are similarly made, but browned on the coals.[90] For the Corpus fiestas *gordas* (pirícis) ¼ to 1 inch thick and shaped like

[87] For example, most temporal wheat in the Lake region is harvested in early April, while in the Sierra ripening is retarded until May. In Cumachuén, the highest pueblo in the Sierra, harvest occurs in the first weeks of June.

[88] The *trigales*, or wheatfields, are watered three times annually, at the end of January, first of March, and at the end of March. Pan irrigation technique is used.

[89] In the Lake towns of Ihuatzio and Janitzio metate-ground wheat dough is mixed with nixtamal (maize dough) to make a tortilla called ichakata.

[90] Beals (1946, p. 32) mentions that in Charán *gordas de trigo* are fried in deep pork fat. This procedure was not encountered in other Tarascan towns.

252 262 animals (birds, rabbits, pigs) are made in some Sierra towns. In La Cañada, however, such figures are prepared from leavened flour dough and baked in the oven.[91] Another wheat food, which is eaten particularly during and immediately after the wheat harvest, is called pakésa. Wheat grains are roasted on the comal, then dry-ground on the metate. The coarse flour is cooked in boiling water flavored with salt or piloncillo. The resultant dough is eaten hot or cold. Moreover, a wheat pozole (whole grains stewed with meat, chile, *tomate*, etc.) is prepared in the Lake and La Cañada areas, but rarely in the Sierra. Again, a wheat atole (trígukamáta) is found in all parts of Tarasca. Various types of bread, called *cemitas* or auákatas are also prepared from metate-ground wheat, usually by professional women bakers. The dough is often sweetened and the breads variously shaped (round or diamond). The dough is baked in the dome-shaped Spanish oven, several of which are found in every Tarascan village. Unsweetened ceremonial breads (kanákua), 1½ feet in diameter and 2 or more inches thick, are made on the Saint's day in some Sierra pueblos.

Wheat foods are also prepared from flour, milled in the larger mestizo towns nearby. A bread called kuínda is baked in the Spanish oven in most pueblos. In La Cañada and the Lake towns tamales (prepared like those of maize) and tortillas are made from wheat flour.[92] Buñuelos, a special dish prepared from wheat flour, are eaten ceremonially or as an occasional treat in all parts of Tarasca. The dough, mixed with tequisquite (a lime compound), salt, and boiled green tomatoes, is thinned into flat cakes by placing on the knee, patting and pulling at the edges. The sheets of dough are cooked in boiling lard in a *casuela*. In the Sierra both men and women prepare and cook *buñuelos*, which are eaten only on certain holidays. Often on ordinary occasions this food is soaked in a sirup of piloncillo and eaten with white atole in the Lake area.

Barley cultivation.—Small amounts of barley 243 are cultivated in most parts of Tarasca, but primarily in the Sierra, for animal feed. The grain is sown in June and harvested in November and

[91] Formerly in Churapan large pitiáis, shaped like human figures 3½ feet high, were given at weddings to the bride as a token of fertility.

[92] Tamales de *trigo* are also seen in the large markets (Uruapan, Paracho), where they are customarily taken with atole. In Paracho they are called ánk-kuínda or ánipti-ukíri.

243 December. Being more tolerant of poor soils and frost than either maize or wheat, it is customarily grown on the upper slopes. As it is believed that barley improves the soil, it is frequently rotated with maize. Much barley is sown on the high slopes around Cumachuén and Pichátaro, where yellow-brown soils and a short-growing season prevail. Oats are rarely cultivated; small fields were reported only in Pichátaro and Cumachuén.

244 *Other European field crops.*—Broadbeans, lentils, and chickpeas are cultivated chiefly around Lake Pátzcuaro and in the northern plateau pueblos, where they are often grown with maize. [262] Although small quantities are raised in the Sierra, these crops have little place in the native diet.

HORTICULTURE

The house-lot gardens (ekuárueca).—These have been frequently mentioned above (pl. 7). In contrast to field agriculture, cultivation in the ekuáru is intensive; a large variety of plants (maize, beans, squash, vegetables, and fruits) are raised in each small lot; the soil is replenished by application of refuse from the dwelling and manure from the stable. The ekuáru is cultivated [462] mainly by the women and children of the household; the fields, in contrast, are worked by the men. In the gardens the women, always conservative, have retained the plants that are old in indigenous culture. Moreover, although some of the larger lots are plowed with oxen, most are cultivated with two of the present forms [412] of the tarákua: the wooden *pala* and the metal-bladed *asada*.

The principal garden crop is the *elote* maize, discussed above in connection with corn types. The cultivation of the old beans, such as kokóɬ, small patches of amaranth, and various squashes in the ekuáru, has also been mentioned. The women plant in the garden other indigenous vegetables, such as chayote (apúpu; *Sechium edule*),[48] *tomate* (tóma; *Physalis angulata*), which bears the small green husk-enclosed tomatoes; and, if water is available for irrigation, chiles of various types. The most significant vegetable grown in [262] the Tarascan house gardens, however, is the

[48] The chayote bears annually small squashlike fruits, which are boiled and served with chile. In its third year the plant develops a large tuberous root, which is dug up and boiled (naxíta) and is often ground on the metate to a flour, which is served as a gruel (atgú). The plant is reproduced by seed, or rather by planting the entire chayote fruit.

244 European cabbage (*col, repollo*), which the Indians
262 have thoroughly taken into their diet. Both the leaf and head varieties are cultivated. Almost every ekuáru in all Tarascan villages contains a small patch of cabbages, which are used for the famous čurípu, or meat and vegetable stew [84] (pl. 5). A more common stew (*repollo-šakuá*) is made of cabbage alone, flavored with red chile, onion, and silantro. The leaf cabbage is the
244 usual variety found in the Sierra. It is rarely planted by seed, but by replanting sprouts that occur at the base of the stalk. The plant is persistent, surviving the frosty Sierra winter; leaves are stripped off until the stock often reaches a meter in height. Other vegetables such as lettuce, radishes, carrots, peas, and turnips, although known in many parts of Tarasca since early colónial times, are today little cultivated or used in native cookery.

247 In addition to the food annuals, the ekuáru
249 contains various medicinal and ornamental plants, mainly those of the Solanaceae, Fabaceae, and Compositae. In a great number of the house lots women plant a stalk or two of tobacco (*Nicotiana rustica*, andúmukua), used not for smoking,
[276] [278] but as medicine.[85] The *trompeta* or *floripondio* (*Datura arborea*); *colorín* or p'oɹéŋɛa (*Erythrina americana*); two euphorbias, *chupiri* (*E. calyculata*) and *flor de pascua* (*E. pulcherrima*); and the Old World *higuerilla* or castor bean (*Ricinus communis*) are not uncommon in the house gardens of the low country marginal to the Sierra. European Compositae, geraniums etc., make up most of the ornamental plants cultivated around the house.

Fruit culture in the ekuáru.—Practically every
245 house lot in most Tarascan villages contains a few fruit trees, both Old World and native. A definite climatic distribution of fruit types exists. In the Sierra are found only the cold-tolerant deciduous fruits such as the European peach, apple, pear, quince, and the native crab apple (*tejocote* or kaɹíta) and cherry (*capulín* or čángua). In the lowlands around the Sierra, however, both subtropical and cold-tolerant fruits are cultivated. The former include the Old World citrus (limes, oranges, lemons), figs, pomegranate (*granada de*

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[84] Čurípu is eaten principally during the maize harvest period and on religious holidays.

[85] For example, in Pichátaro tobacco is taken for fever and is chewed to cure toothache.

245 438 orchard. In such cases trees are closely spaced and present an unkept appearance.

Many Tarascan pueblos in the lower and warmer areas bordering the Sierra specialize in subtropical fruits, and possibly served prehistorically as fruit supply centers for the Sierra towns. Since the development of modern transportation their produce is taken to many parts of Mexico. San Angel Zurumucapio is the avocado center of the Tarascan *tierra templada*,[98] Tingambato the chirimoya town, and the former Tarascan pueblos, Ziricuritiro and Acahuato, produce bananas, mangoes, mamey, citrus, etc. Tarascan Atapan and mestizo Tingüindín supply the western part of the Sierra with citrus, guayaba, and mangoes. As early as 1581 Atapan had become a citrus-growing center, and probably before the Conquest had produced avocados and chirimoyas for Sierra trade. The La Cañada towns have ever been the northern Tarascan fruit center. Today avocados form the main fruit speciality of Acachuén, Ichán-Tacuro, and Carapan; oranges are the chief export of Tanaquillo.[99] With the possible exception of Ihuatzio, which produces large quantities of avocado, there is no specialized fruit town in the Lake area, although the aggregate subtropical fruit production there is of importance in Sierra trade.

262 Fruits from the *tierra caliente* have long had a special significance among the Sierra Tarascans. Today at least two tropical fruits are eaten especially at religious fiestas, and special effort is made to obtain them for such occasions. Coconuts (kóko) in some Sierra pueblos are rarely eaten except during the Ramos and Easter holidays. [439] Formerly in Charapan 2 weeks before Easter a group composed of 15 men and boys from each barrio traveled down to the Tepalcatepec Basin to fetch coconuts for eating and coconut blossoms for church decorations. [389] The band was ceremoniously seen off with the firing of rockets.[100] Likewise, the large plantain (*plátano macho*) is eaten

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[98] The large avocado trees in the house lots of Zurumucapio completely hide the town. Two types of the fruit are grown, the black and white-skin varieties. Both are irrigated, and the fruit is harvested in April and May. Frequently coffee plants are grown under the shade of the avocado.

[99] Other fruits produced in La Cañada: Limes, guayaba, chirimoyas, figs, apricots, jusquiniquiles (*barán*), plums, mangoes, pomegranates, peaches, apples, zapote blanco, capulin, a few bananas.

[100] This custom has practically disappeared in the Sierra. Most coconuts and other tropical fruit are now obtained at the Ramos (Palm Sunday) fairs at Paríbán, Zamora, Uruapan, and Pátzcuaro. In the Lake area during Easter festivities churches are often decorated with melons (*sandías*) from the Balsas.

[P. 47-d] Sierra Pátzcuaro

raw (when aged or *pasado*) or, more recently, cooked on Easter, and sometimes on the village saint's day are distributed to all inhabitants at the end of the fiesta.[101] Moreover, cacao beans were formerly an important trade article imported into the upland pueblos. In most households in the Sierra the beans were roasted on the *comal* and then wet-ground on the metate. Mixed with piloncillo and cinnamon, the chocolate "dough" was made into small disks (2 in. diameter), called k'ékua. A chocolate drink is made by dissolving the k'ékua in hot water. A few storekeepers still make disks from ground chocolate purchased from mestizo wholesalers. Today chocolate is taken principally on fiesta days, and is often served to visiting strangers. Other tropical fruits, such as the common banana, mango, pineapple, mamey, chicozapote, zapote prieto, etc., are brought into the Sierra in season. They are eaten at all times and appear to have no ceremonial significance. Pineapple is used for a fermented beverage, *tepache*.

Specialized truck gardening.—This is a more recent type of horticulture among the Tarascans. They have adopted intensive commercial production of vegetables in only a few well-watered spots near large mestizo markets. The most notable truck gardening district has developed on the narrow stretches of lacustrine soil along the shores of Lake Pátzcuaro, where irrigation is practiced. Although water is carried in buckets to some of the smaller gardens (e. g., in Puácuaro), most of the vegetable plots are irrigated with the t'apáratarákua, or *pala*, possibly a pre-Columbian invention.[102] This instrument consists of a wooden spoonlike container fastened to a long pine pole, which, resting on a crosspiece, is used like a lever to scoop water from ditches or wells (fig. 4; pl. 7). Along the wide western shore of Pátzcuaro shallow ditch wells are dug down to the water level (5 to 6 ft. from the surface), from which water is scooped and distributed to vegetable plots by a system of small canals. Along the narrow shores of the Tarío-k'éri Peninsula (where the water table is low) small canals have been constructed to permit lake water to flow into a ditch well, from which the water is lifted with the *pala* to high levels. In

[101] The latter custom was reported from Charapan and Patamban.

[102] The provenience of the *t'apáratarákua* is not clear. Its mention has not been encountered in colonial documents; the Relación de Michoacán (p. 35), however, speaks of irrigated maize, presumably around Lake Pátzcuaro. Today the *t'apáratarákua* is used also at Tarejaro, in the basin of Zacapu.

231 house lot. Droves of pigs are never mast-fed in the forest. Hogs are fattened on corn and sold; as pork is well liked, they are often killed for food and for lard, now indispensable in European-modified Indian cookery.

Other animal domesticates include fowls and bees. The turkey (kurúka),[111] the only native domesticated fowl in the area, is more common in mestizo towns than in Tarascan villages. The European chicken (ʃíkata,)[112] however, is ubiquitous; practically every Indian household has a flock of five or six. A single breed, probably descendent from the Spanish fowls introduced early in the 16th century, predominates.[113] Improved breeds have penetrated only into large mestizo towns on the edge of the indigenous area. Several families in every Tarascan pueblo keep a few hives of European bees in the house lot. Hives consist of rows of small wooden rectangular boxes placed on benches (pl. 7). In some Sierra villages (e. g. Capacuaro) native bees hive in sections of logs hung on the outside wall of the
[263] house. Both honey (for sweetening) and wax
[237] (for religious candles) are extracted from the hives in November or December.

Animal foods in Tarascan diet.—Tarascans eat
262 meat whenever it is available and can be afforded.
252 Chunks of boiled beef are one of the chief ingredients of čurípu. This dish is also made of the heart, liver, intestines, and lungs. Other beef dishes prepared in most Tarascan pueblos are: a stew, or atápakua, thickened with *mole;* uiríkata, or meat broiled over charcoal or on the *comal*; various cuts fried in the *cazuela*; *menudo*, or stomach lining boiled and served with ground chile; dried salted meat (*cecina*); steamed beef heads (including tongue and brains), called *virría* or *babaqua*.[114]

[235] Neither cow nor goat milk is popular among Tarascans. Some milk cows are kept in the larger villages to supply the pregnant and the sick. Little cheese is made locally, most being brought in from the *tierra caliente*.

Although well liked by most Tarascans, mutton

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[111] The word kurúka is apparently onomatopoeic; ʃíkata-ambá or "good chicken," is also used as a name for turkey.

[112] The word "ʃíkata" is Tarascan for a wild grouse, and was evidently applied to the chicken soon after its introduction.

[113] Hens are small, dull brown, often speckled with yellow and black; cocks are reddish brown with highly colored tail, wing, and neck feathers.

[114] Some of the above Tarascan words are also applied to stews and roasts of deer meat. With the possible exception of čurípu, uiríkata, and atápakua, all meat dishes prepared by modern Tarascans are of Spanish origin.

4: West K-5 (1946) 1948 NU34 Tarasco NU34
[P. 50b] Sierra

262 is eaten only on Sundays or on fiesta days by those who can afford it. On festive occasions, such as 252 weddings, a whole mutton is stuffed with cleaned entrails and head and roasted in a large oven. (The roast is called *tatemado*, or uirikata.) On less prominent occasions pieces of mutton are often cooked with vegetables to make a kind of čunípu.

Pork is always eaten fresh; cured pork, such as ham, bacon, and sausage—all old Spanish meats—, has no place in modern Tarascan diet. Pieces of fresh pork are fried on the *comal*, or boiled with vegetables. A popular pork dish, especially in the Sierra, is *chicharrones* (cracklings), which consist of pieces of fresh pig skin well-cooked in a large copper caldron.[115] *Carnitas*, pieces of meat and fat, including spareribs, side meat, leg, etc., are also cooked in the caldron in many pueblos, and are commonly served in the markets of the large mestizo towns nearby.

FOOD-GATHERING ACTIVITIES

222 Tarascan women and children gather various 262 wild herbs, fungi, and fruit to supplement agricultural products. Among these the most important are the annual greens, or šakuá,[116] collected during the rains from June through September. They are usually found in disturbed ground, e. g. within and on the edges of wheat or maize fields. The women in some Sierra pueblos recognize more than 15 varieties of šakuá that are habitually gathered.[117] These are boiled with chile and [252] salt to make atápakua. Although eaten in all modern Tarascan villages, such greens are of greater importance in the Sierra, where the garden vegetables common in the Lake and La Cañada areas are infrequently cultivated.

Mushrooms (terékueča) are collected in all Tarascan towns, and, like the annual greens, appear only in the rainy season. They are found in the fields, in the forest growing under decaying logs,

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[115] In the spring of 1946 a *chicharrón* cooking was observed in Pamatácuaro. After killing a hog the local butchers or others set up a caldron in the plaza to cook the skin. By the time the cracklings were well done, a large group of villagers had gathered to buy them at a few centavos each. The lard so rendered was sold to one of the local stores. The cooking of *chicharrones* is also common in many mestizo towns in central and northern Mexico.

[116] Šakuá is the Tarascan equivalent of the Nahuatl "quilitl," which has been hispanicized to *quelite*, the general term now used in Mexico for any kind of wild annual used for greens.

[117] Unfortunately, the Sierra was visited during the dry season, and consequently specimens of šakuá plants could not be collected for botanical classification. Verdolaga (*Portulaca oleracea*) and tender amaranth shoots, however, are common šakuá varieties.

222 and even in sheltered spots in the village streets.
262 Again, collecting is done by women and children, though men may bring home a mess of mushrooms found while cutting wood. Eight to ten edible varieties are known in most towns. Children are trained early to recognize the poisonous kinds, called uaxíš-terékua (ghost mushroom). Terékueča are prepared by boiling and then frying [252] in lard; they are also roasted with salt on the *comal* or over live coals; sometimes they are boiled and mixed with chile sauce. A *tamal* nákatamal-terékua) is often filled with boiled mushrooms. Aside from mushrooms, the fungus growth on maize ears is likewise called terékua (the *cuitlacoche* (*Ustilago maydis*) of the Aztecs), and is similarly prepared and eaten.

In the Sierra acid fruits, particularly berriec, are other food items collected. The fruit of the native blackberry bush (*zarzamora*, ȼ'tún), which grows best in disturbed ground along hedgerows and on edges of fields, is gathered in May and June. The berries are eaten fresh with salt and are used to flavor atole (*atole de zarzamora*, ȼ'tún-kamáta). Other fruits commonly gathered include piníki, an orange-colored berry often carried to mestizo markets; *tejocote* and *capulín*, both gathered wild or semicultivated in hedgerows; wild grapes; the cherry tomato (šapíndikua), which grows along the edges of cultivated fields.

The buds (šamáš) of a wild *mezcal* type of agave is another food item commonly gathered in the Tarascan area and in most parts of Central Mexico. The buds and lower fleshy ends of the 262 leaves of the plant are roasted in a hole about 1 252 meter deep and 1 to 2 meters across, which is usually dug on the forested slopes where the wild agave is available. A fire is built in the hole, and after it has died down somewhat rocks are placed on top. When the stones become hot, the agave is placed in the hole and covered with maguey leaves and earth. After 3 days the cooked agave is taken out and carried to various markets where it is sliced and sold. Roasted agave is often termed *mezcal* (siuáta), but it must be distinguished from the distilled liquor (s'áku) of the same name. The former is rich in starch and is possibly one of the more ancient foods of Mexico.

Aside from food plants, the coarse roots of 222 zacatán grass (*Muhlenbergia macroura*) are collected by men throughout the Sierra. Called *raíz de paja* or *raíz de zacatón*, the dried roots are sold in

10:Beals & Hatcher E-4,5 (1941-1942) 1943
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The village of Cherán is primarily an agricultural village, at an elevation of approximately 8500 feet, in the mountains between Pátzcuaro and Uruapan, Michoacán, México. The climate consequently is temperate. In comparison with other villages of the region, Cherán is relatively prosperous and it is probable that the diet is better than in the majority of Tarascan towns. In terms of Tarascan standards, probably only between ten and twenty percent of the population is to be classed as "poor". On the other hand, there are no markedly wealthy families.

Three methods of collecting data were used. One, followed primarily by Sra. Rendón, was the collection of a complete list of foods eaten and the compilation of a large number of menus of actual meals for as many families as was possible. In addition, the entire staff collected recipes for specific dishes. These, although of ethnographic interest, were of little use in the present study. Finally, the cooperation of a number of literate families was enlisted to get a complete record of the food consumed over a fifteen day period.

The final method naturally was the most valuable. Unfortunately, the number of cooperating families was small. Moreover, the accuracy of the returns probably varied considerably. In many cases, the amount of money spent was given rather than the quantity purchased but, as very detailed studies of prices had been made it was possible to equate prices and quantities with some accuracy. One considerable source of error is the amount of vegetables such as cabbage, greens, and so on gathered from gardens or from woods. In addition, a certain amount of fruit or "snacks", purchased in the market or from street vendors had to be estimated from knowledge of general habits. The most specific records covered only a period in the late Fall and do not take into account some slight seasonal variations in the diet. Despite all these deficiencies, the various types of data seem to point to the same general conclusions, and we believe that these are reasonably valid. if the specific results are viewed with proper reserve.

An average weekly diet for a Cherán adult is presented in table I.[2]

in 1941-1942. The study formed a part of the Program of Anthropological Investigations among the Tarascan Indians, a joint enterprise of the University of California, the Escuela Nacional de Antropología, the Instituto Nacional de Antropología e Historia, and the Departamento de Asuntos Indígenas. Analysis of the data was made by the junior author, Evelyn Hatcher.

[2] In compiling the tables, the following sources were used: Chatfield and Adams, **Proximate Composition of American Food Materials**, United States Department of Agriculture Circular N° 549, 1940: Chatfield and McLaughlin, **Proximate Composition of Fresh Fruits**, United States Depart-

10:Beals & Hatcher E-4,5 (1941-1942) 1943
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TABLE 1

	onzs.	*I. U. A*	*I. U. B_1*	*mg. C*	*mg. B_2*	*onzs. proteins*	*onzs. fats*	*Calories*
maize	148	18,200	2,150	—	1.5	14.8	6.36	15,629
meat (beef)	8	40	90	4	.13	2.5	1.6	500
cheese	2	1,120	9	—	.32	.36	.64	223
beans	3.5	27	50	0	—	.77	.05	350
milk	8	350	38	5	.30	.14	.16	155
cabbage	2	30	14	8	—	.03	0	16
chile	1.5	1,320	—	81	—	—	—	—
oranges	4.5	70	35	40	.12	.94	0	65
bananas	5	230	28	23	.07	.06	0.01	140
pears	3.5	6	5	3	.02	.02	.01	68
sugar	1	—	—	—	—	—	—	113
fish	1	200	20	0	.1	.25	—	200
greens	6	1,000	30	40	—	.24	—	70
Totals		22,593	2,469	204	2.56	19.21	8.83	17,529

Diet of one adult for one week, an average of the diets given.
I. U.: International Units.
mg.: milligrams.

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146 This table is an abstraction derived from all the different sources of information. It shows that the diet contains somewhat more than 262 minumum requirements of vitamins A and B1, slightly less than minimum requirements of vitamin C, and appreciable deficiency of vitamin B_2, ample proteins, and nearly a 25 percent deficiency in calories. 556 511

Such an average diet obviously is not very meaningful in giving the extremes. Fortunately, the two best fifteen day schedules secured were respectively from one of the wealthiest families in town and from one of the poorest. Table 2 shows the analysis of the diet for one week of an adult belonging to the wealthiest family.

The results of table 2 show a number of interesting and important points. While the vitamin A intake is above the minimum requirements (although still far below optimum recommendations), virtually all the vitamin A comes from yellow maize. If white maize were to be consumed, the vitamin A intake would be dangerously reduced. When it [184] is remembered that in some sections of Michoacán, white maize is preferred, it is evident that if the diets are at all similar to those at Cherán, serious vitamin A deficiency must occur. This is almost certainly the case, as diets of most Tarascan and many rural Mexicans in the area are little different from those in Cherán. The wealthy diet shows an approach to the higher recommended quantities of vitamin B_1, but vitamin C does not quite reach the minimum, and vitamin B_2 is still only about half the minimum needed. The protein intake is quite high and the calory intake is slightly above the recommended minimum for moderately active males. Table 2 is arranged to emphasize the importance of maize in the diets of even the wealthy.

Turning to the diet for a very poor family, analyzed in table 3, the vitamin A intake is slightly above minimum requirements, although again the figures depend upon the use of yellow maize. Vitamin B_1 intake is well below minimum requirements, and is only about half of the recommended quantity. Vitamin C, on the other hand, shows up much better than in the wealthy diet, due to the greater use of chile. If this is typical of poor family diets, then the vitamin C intake of poorer people is almost twice the minimum requirements, although

128 ment of Agriculture Circular N° 50, Revised 1931; Stiebeling and Phipard, **Diets of Families of Employed Wage Earners and Clerical Workers in Cities**, United States Department of Agriculture Circular N° 507, 1939; Daniel and Munsell, **Vitamin of Foods**, United States Department of Agriculture Miscellaneous Publication 275, 1937; Borsook, **Vitamins**, Viking Press, 1940; Booher and Hartzler, **The Vitamin B Content of Foods**, United States Department of Agriculture Technical Bulletin N° 707, 1939; and Fixen and Roscoe, **Table of Vitamin Contents**, Nutrition Abstracts and Reviews, 9, 795 (1940).
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10:Beals & Hatcher E-4,5 (1941-1942) 1943
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TABLE II

	onzs.	*I. U. A*	*I. U. B_1*	*mg. C*	*mg. B_2*	*onzs. proteins*	*onzs. fats*	*Calories*
meat	10.4	52	117	5.7	.16	1.9	1.35	875
cheese	1.6	900	7	—	.25	.37	.52	179
bread	1	70	30	0	—	.1	.02	100
bananas	5.5	230	28	7	.07	.66	.11	154
milk	16	700	75	10	.60	.28	.32	310
lard	.5	—	—	—	—	—	H.5	127
beans	5	40	71	0	—	1.1	.08	495
oranges	12	117	100	107	.32	.11	.02	175
fish	1	200	20	0	.1	.25	—	200
greens	6	1,000	30	40	—	.24	—	70
chiles	.7	616	—	38	—	—	—	
Totals (without maize)		3,835 [1]	433	207.7	1.50	5.01	2.42	2,685
maize (yellow)	192	23,600	2,840	—	2.07	19.2	8.26	20,280
Total		27,585	3,318	207.7	3.57	24.21	10.68	22,965
Minimum requirements.		21,000	2,331	210	6.3	11.2	—	—
Recommended		42,000	3,500	525	12.6	15	—	21,000

Diet of one adult for one week, wealthy family.

[1] This would be the quantity of vitamin A with white maize.

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TABLE III

	onzs.	*I. U. A*	*I. U. B_1*	*mg. C*	*mg. B_2*	*onzs. proteins*	*onzs. fats*	*Calories*
maize	121	14,890	1,750	—	1.2	12.1	5.2	12,780
chiles	7.5	6,600	—	400	—	—	—	75
beans	1.5	10	33	—	—	.33	.02	250
cheese	2	1,120	9	—	.32	.36	.64	223
greens	3	500	15	20	—	.12	—	35
Totals		23,120	1,807	420	1.52	12.91	5.86	13,363
(with white maize)		8,230	—					
Minimum requirements.		21,000	2,331	210	6.3	11.2	—	—
Recommended		42,000	3,500	525	12.6	15	—	21,000

Diet of one adult for one week, very poor family.

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still short of what is recommended by some authorities. With vitamin B_2, however, the deficiency again becomes marked. Protein intake is barely above the minimum, while less than two thirds the minimum number of calories is secured.

The figures given in these tables, and the difficulties which arose in securing them, point out serious problems in the development of an accurate measure of diets. As the junior author has remarked, "I don't believe any of the values I found, and I don't believe the results I got. The whole business consists of a series of estimates. The actual figures in the tables mean little, but the fact that, in spite of whatever contortions I put the data through, I came out with something similar, gives plausibility to the general results." The reasons for this situation lie only partly in the inadequacies of the data; even greater uncertainty results from the difficulty of applying the published results of vitamin assays directly to specific foods prepared in specific ways. Thus in the case of the crucial vitamin C values, which in poor diets is almost wholly derived from chile, the variation in the C content of different varieties, and the variable losses in cooking and storage of each of these varieties under specific conditions makes an accurate estimation very difficult. In the case of maize, there is apparently no information as to the effect of storage and preparation on the vitamin A and vitamin B_1 content. As Mills has pointed out, there is also a difference in the vitamin content of foods produced in different regions.[3] We have no way of knowing whether corn produced in Michoacán, for example, has the same vitamin content as the corns analyzed in the United States. Finally, one may raise the all important and hitherto completely unanswered question as to whether nutritional requirements are the same for all peoples.

Nevertheless, some suggestions emerge from the studies. First of all, it is clear that the basic field data must be collected with great accuracy and with refernce to specific foods. The work of Steggerda[4] in Yucatán, for example, could not be compared with the results in this paper simply because a large number of foods were lumped together, rendering any effort at vitamin analysis impossible. This also applies to general statements about the importance of individual foods to diets. Ralph Linton, for example, has recently suggested that the increased protein intake resulting from the domestication of the bean,

[3] Mills, C. A. "Climatic Effects on Growth and Development, with Particular Reference to the Effects of Tropical Residence" (American Anthropologist, 44: 1-13, 1942).

[4] Steggerda, Morris. "Maya Indians of Yucatán". Carnegie Institution of Washington, Publication 531.

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121 [114] made possible the dense populations necessary for developing the more advanced Middle American cultures.[5] Yet when we analyze actual intake of foods among a people who undoubtedly were part of the advanced culture groups, we find that the protein intake from beans [146] in a wealthy family is only 1.1 ounces per adult per week, and in a poor family 33 ounces per week, while the protein intake from maize is respectively 19.2 ounces and 12.1 ounces per week. It is true that the quality of protein may be a factor of significance, particularly with reference to presence or absence of amino acids, but again no very satisfactory data are available. Finally, it is evident that much more work must be done in determining the values of foods, particularly with respect to the vitamin content of foods grown in the Tarascan environment. There must be further studies of the effects of maize storage, chile drying, and the specific effects of Tarascan cookery methods upon specific foods, to mention but a few problems.

128 146 One additional method of checking the validity of the present results is possible. The vitamin picture does suggest certain clinical and sub-clinical deficiencies. Persons using white corn in this area should show a high incidence of night blindness, some xerothalmia among children, and retarded growth. The B-vitamin picture is everywhere low, markedly so among low income groups. Consequently, there is expectation of pellegra, lack of vitality, and digestive disorders such as constipation. Scurvy probably should occur at times if the results are more or less correct. All of these dire predictions could be checked by good medical field studies; if verified, the reliability of the present study would be considerably enhanced. The probability that vitamin B deficiencies affect vitality indicate the importance of further studies to determine possible influences on culture development or cultural participation.

146 As a final comment, the Cherán diet would be greatly improved by a shift in emphasis upon items already present. More whole wheat, bread, sweet potatoes, oranges, bananas, milk, tomatoes, meat and eggs, and less maize, would produce a distinctly better diet. Table 4 is a modification of the diet for a very poor family, showing what a great change would be produced by rather slight shifts which could be accomplished with little or no increase in cost. The increase in vitamin intake, however, would still leave a deficiency of the vitamins and reduce the calory intake still more.

262 435 Analysis of the costs of various diets reveal much more striking differences than are shown by the nutritive values. Data from one of

[5] Linton, Ralph, "Crops, Soils, and Culture in America" (in The Maya and their Neighbors, New York, 1940, pp. 32-40).

[text continues on p. 304]

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TABLE IV

	onzs.	I. U. A	I. U. B_1	mg. C	mg. B_2	onzs. proteins	onzs. fats	Calories
maize (yellow)	91	11,170	1,400	—	1.0	9.0	4.0	9,645
sweet potato	21	24,000	150	60	—	.38	.15	840
whole wheat bread . .	4	280	120	—	—	.4	.16	400
cheese	2	1,120	10	—	.32	.36	.64	223
beans	1.5	10	30	20	—	.33	.02	250
greens	3	500	15	20	—	.12	—	35
chile	5	4,400	—	265	—	—	—	50
milk	3.5 pints	2,450	260	35	2.1	.98	1.12	1,085
Totals		43,790	1,985	400	3.42	11.57	6.09	12,528
Minimum requirements.		21,000	2,331	210	6.3	11.2	—	—
Recommended		42,000	3,500	525	12.6	15	—	21,000

Sugested improved diet of one adult for one week. This is the Table 2, (very poor family) diet, substituting whole wheat bread, sweet potatoes and milk for some of the corn and chile.

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262 the poorest families in town shows that the total food cost for a family
435 of three adults and two children could average as little as 81½ centavos a week or $42.38 (pesos) a year. This would be 16.3 centavos a day per person. In contrast to this, the diet of a relatively wealthy family, in which the household numbered ten persons, cost $12.50 per week or $650.00 per year. This would be $1.25 per person per week, or $65.00 per person per year, again disregarding age differentials.[6]

146 The suggested improved diet given in table 4 actually might cost
262 even less than the poor family diet presented. The diet in figure 4, is, however, deficient in calories, as has been stated. Even with the addition of sufficient calories, it is possible that the improved diet would not add noticeably to the cost; certainly it would not cost more than a peso a week for the five persons. These data suggest that education in the use of proper foods and the changing of food habits may sometimes be more important than economic betterment as a means of bringing about adequate nutrition.

121 It must be reiterated, however, that any conclusions suggested in this paper are tentative. Imperfect as the data and interpretations are, it is nevertheless clearly indicated that extensive and accurate nutritional studies are needed. This is true, whether the major aim is to discover the possible relation of nutrition to other cultural factors, or whether it is to map out a program of nutritional improvement for the group.

[6] In these cost estimates, it is assumed all food was purchased; actually some would be grown.